

Academy

California Academy of Sciences – Golden Gate Park

April/May 1998

EARTHQUAKE Opens!

Birds of Prey – **Live** at the Academy

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To explore and explain the natural world

Executive Director's Message

I am both delighted and honored to accept the position of the Academy's Executive Director and I look forward to continued success and progress for the Academy as we enter the next century.

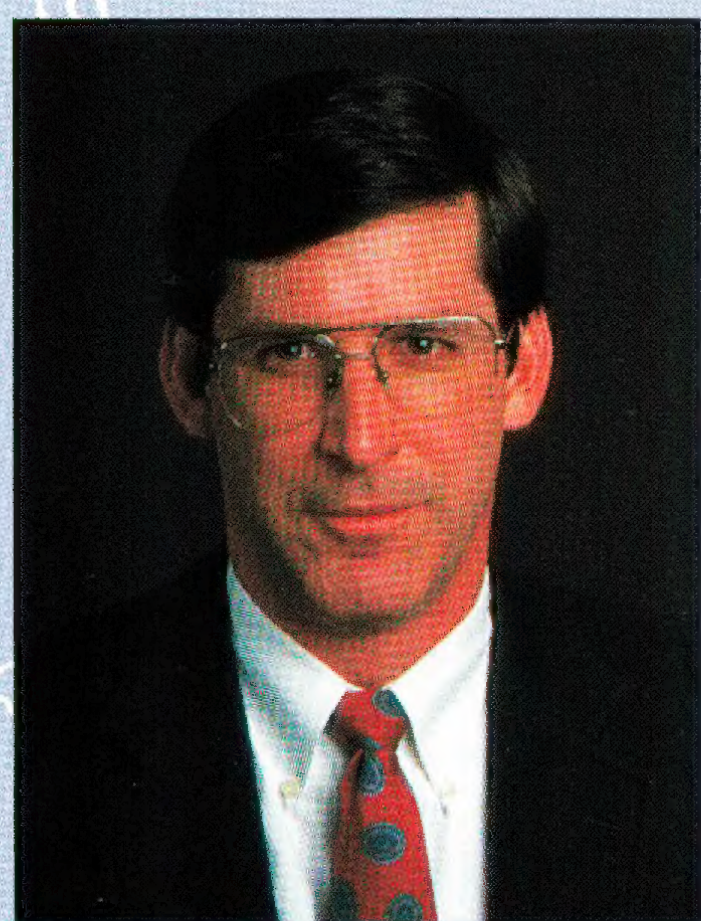
It is a challenging time to be the director of the Academy since our future in Golden Gate Park appears now to be in the hands of San Francisco's voters. In the last edition of *Academy* you might recall that I wrote about the process by which the Academy was attempting to determine whether it should stay in, or leave Golden Gate Park. Since that time, though, there have been dramatic developments concerning our future, the de Young's future and the very future of Golden Gate Park.

The de Young Museum will attempt to pass a bond measure in this June's election that, if passed, would bring the museum \$90 million dollars to rebuild the institution after the damage it sustained in the 1989 Loma Prieta earthquake. A similar bond effort was narrowly defeated in 1996.

In addition to the de Young measure, June's ballot will offer voters the opportunity to vote on the Golden Gate Park Revitalization Act. Among other things, passage of this ordinance would create a public benefit authority that would be charged with overseeing the construction of a garage under or near the Concourse area situated in front of the Academy. The ordinance provides for the removal of one above-ground parking space for every parking space provided in the garage. With the removal of all parked cars around the Concourse, the result will mean a veritable pedestrian oasis.

The authority also would be responsible for studying and ultimately implementing alternative transit measures that will help alleviate traffic congestion in the Park. It is undeniable that as a transit-first city, San Francisco, its citizens and those who visit,

of the Academy since our future in Golden Gate Park appears now to be in the hands of San Francisco's voters. In the last edition of *Academy* you might recall that I wrote about the process by which the



Dr. Patrick Kociolek

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Chairman's Message

It gives me great pleasure to report that the Academy's Board of Trustees has announced the appointment of Dr. Patrick Kociolek as permanent Executive Director. Patrick served as Interim Director during the last four months. Prior to his role as Interim Director, Patrick held the position of Director of Research for five years.

Patrick first came to the Academy in 1989 when he became the first recipient of the Hanna Chair in Diatom Studies. The study of diatoms is Patrick's field of expertise and he has published two books and over seventy-five original scientific works focusing on diatoms from the ecosystems of Lake Baikal, the Rift Valley Lakes of East Africa, North America's Laurentian Great Lakes, and the Amazon River basin of South America. He is currently the President of the International Society for Diatom Research.

Patrick and his wife, Carla, have two children: Erika, age ten and Michael, age six.

This announcement has been received enthusiastically by the Academy's staff as well as our numerous supporters who are part of our extended family. The Academy is fortunate that Pat has agreed to accept this responsibility.

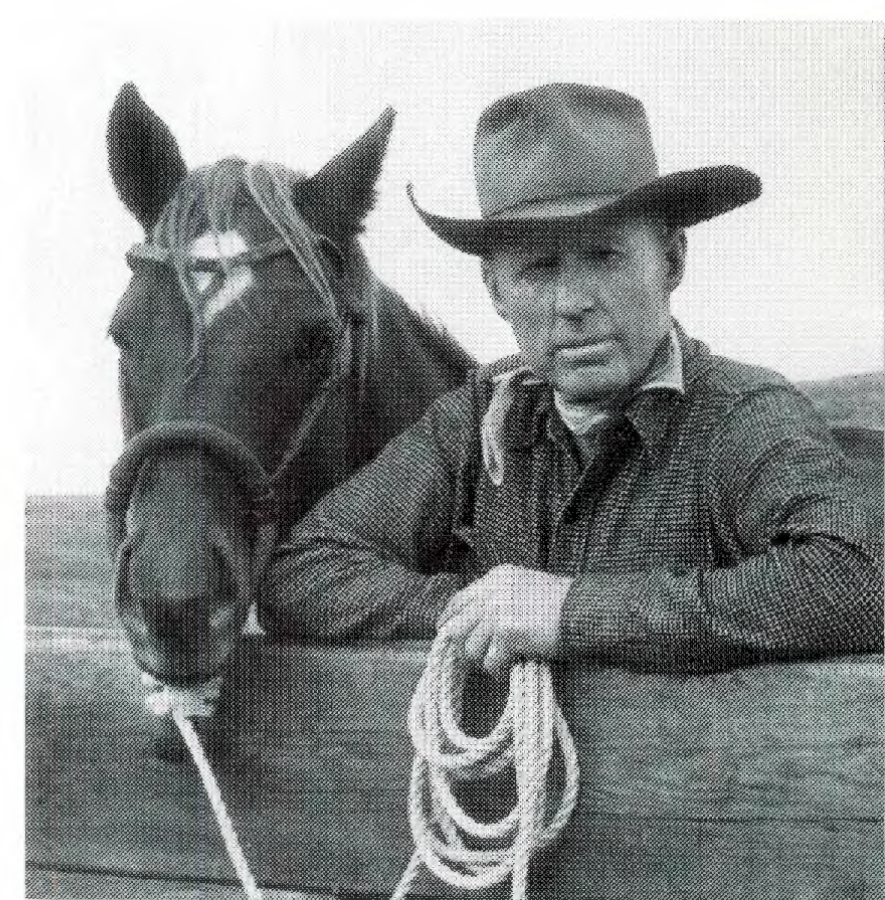
*W. Richard Bingham
Chairman of the Board*

A Tribute to Eben McMillan, CAS Fellow

by Dr. Sterling Bunnell

Eben McMillan, who died on January 21 of this year, was a naturalist, rancher, and self-taught philosopher. His integrity and knowledge won respect wherever he went, and he taught by example as well as precept. His extensive knowledge and understanding of the California condor made him a significant figure in the turbulent history of that great bird's pre-captivity years. In addition to being an outstanding amateur ornithologist, Eben was an excellent field botanist and helped his friend and relative Ernest Twisselman write a book on the flora of the Temblor Range. Eben corresponded with and was often consulted by ornithologists and botanists in the western United States and Canada. He had turned the land around his house into an ecotonic oasis for wildlife where quail, doves, and cottontails thrived amid artfully planted native shelter, forage shrubs and bushes. Along the unpaved road leading to his house was a long hillside which he had removed from grazing in the 1950s. He subsequently watched intently as native species of plants began to reappear and something resembling the former natural community could be recognized.

Eben was born in Shandon in 1907 and worked on various ranches as a young man. He became a foreman on a large cattle



Eben McMillan
October 6, 1907 – January 21, 1998

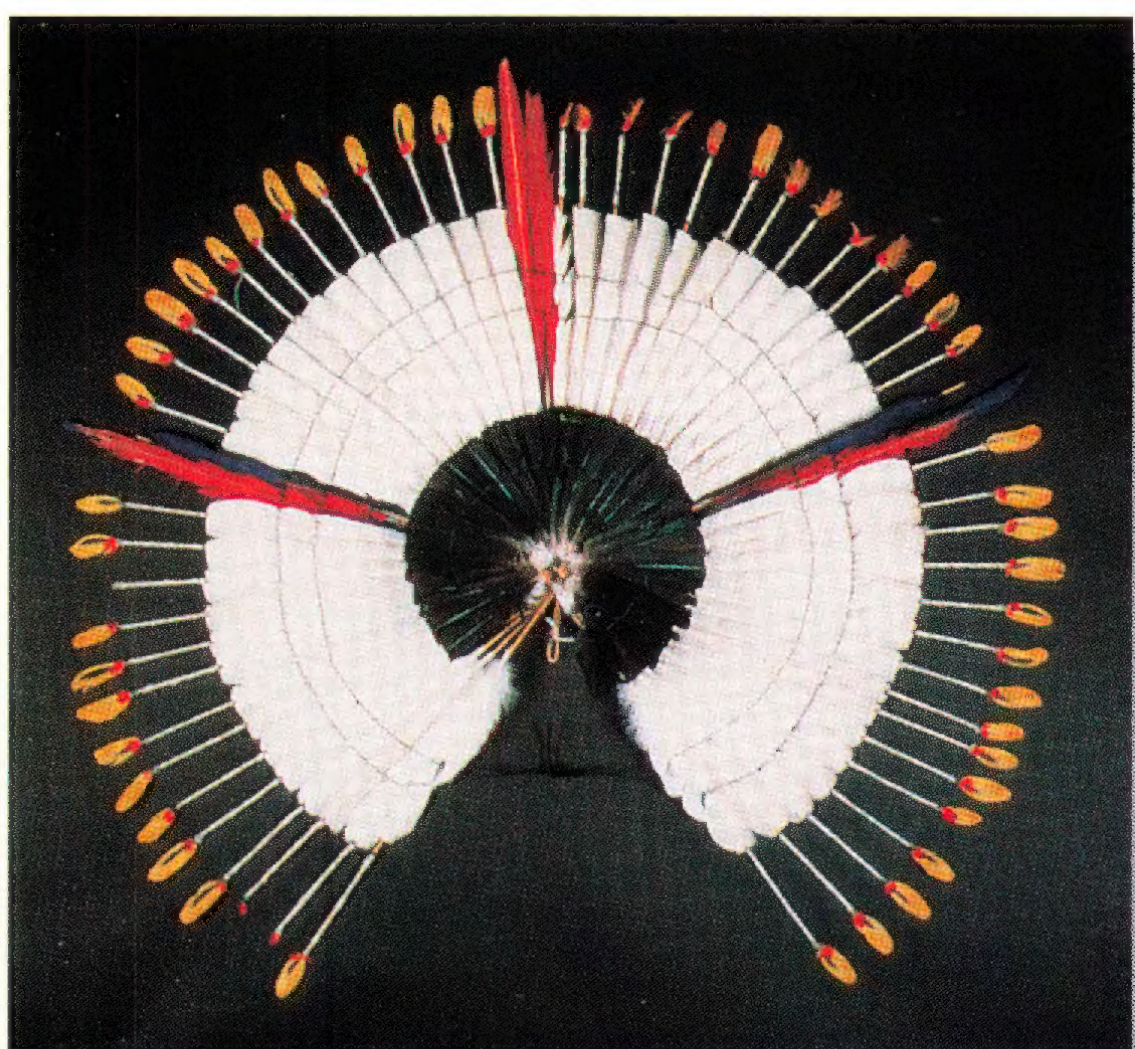
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Ceremonial Arts of the Amazon

May 30 through September 8

Indians of the Amazon region numbered three to five million at the turn of the century. Today it is estimated that less than 200,000 Indians survive. Now, 500 years after the Europeans' arrival, they are being forced out of their last refuge.

This exhibition dramatically illustrates the vibrant cultures of sixty-five tribes that reside in the rain forests, grasslands, and Andean foothills located in Brazil, Ecuador, Peru, Venezuela, and Colombia. The domain of these tribes covers an area larger than the continental United States. The ceremonial arts resulting from cultural



Feathers, seeds, and fibers are used to create colorful cultural ornaments.

traditions of these tribes serve as a remarkable window to a land and people that are inextricably linked and are dangerously close to disappearing forever. Feathers, seeds, and fibers from the canopied rain forest tell of a connection to the natural world that transcends definition.

Always Getting Ready: Photography of the Yup'ik Eskimo

Through August 2

In the words of Yup'ik tribal resident Agnes Kelly Bostrom, "All through the year we are getting ready, getting ready for fishing, for berry picking, for pot-latches, getting ready for winter. We are always getting ready to go somewhere to get foods. And because we are so spiritual, we are always getting ready for the next life."

In this exhibition, the camera of James Barker follows the Yup'ik Eskimo of the Alaska's Yukon-Kuskokwim Delta through a one-year cycle of hunting, fishing, sealing, trapping, and dancing that honors life on the land.



Yup'ik Eskimo holding dried seal gut.

EARTHQUAKE

Are you ready for the BIG ONE?

Opens April 18

To commemorate the anniversary of the 1906 earthquake that rocked the Bay Area, on April 18 the Academy will unveil its newest landmark. **EARTHQUAKE** is a permanent attraction that lets you experience what it feels like to be in several earthquakes, from small tremors to great ground-shaking quakes.

EARTHQUAKE describes the physical causes for tremors in a way that demystifies them. The main attraction is a multimedia theater that simulates earthquakes, with survivor stories and actual video footage. A 3-D earthquake preparedness computer takes place inside a San Francisco Victorian, a "convection tank" gives a liquid demonstration of heat movement within the earth, and "liquifaction" shows why those houses in the Marina sank in '89.

EARTHQUAKE is certainly one of the most anticipated exhibits in Academy history. Beginning April 18, Bay Area residents and visitors from around the world can come face to face with Earth's most fascinating natural phenomenon, and learn how to be prepared the next time the ground shakes.

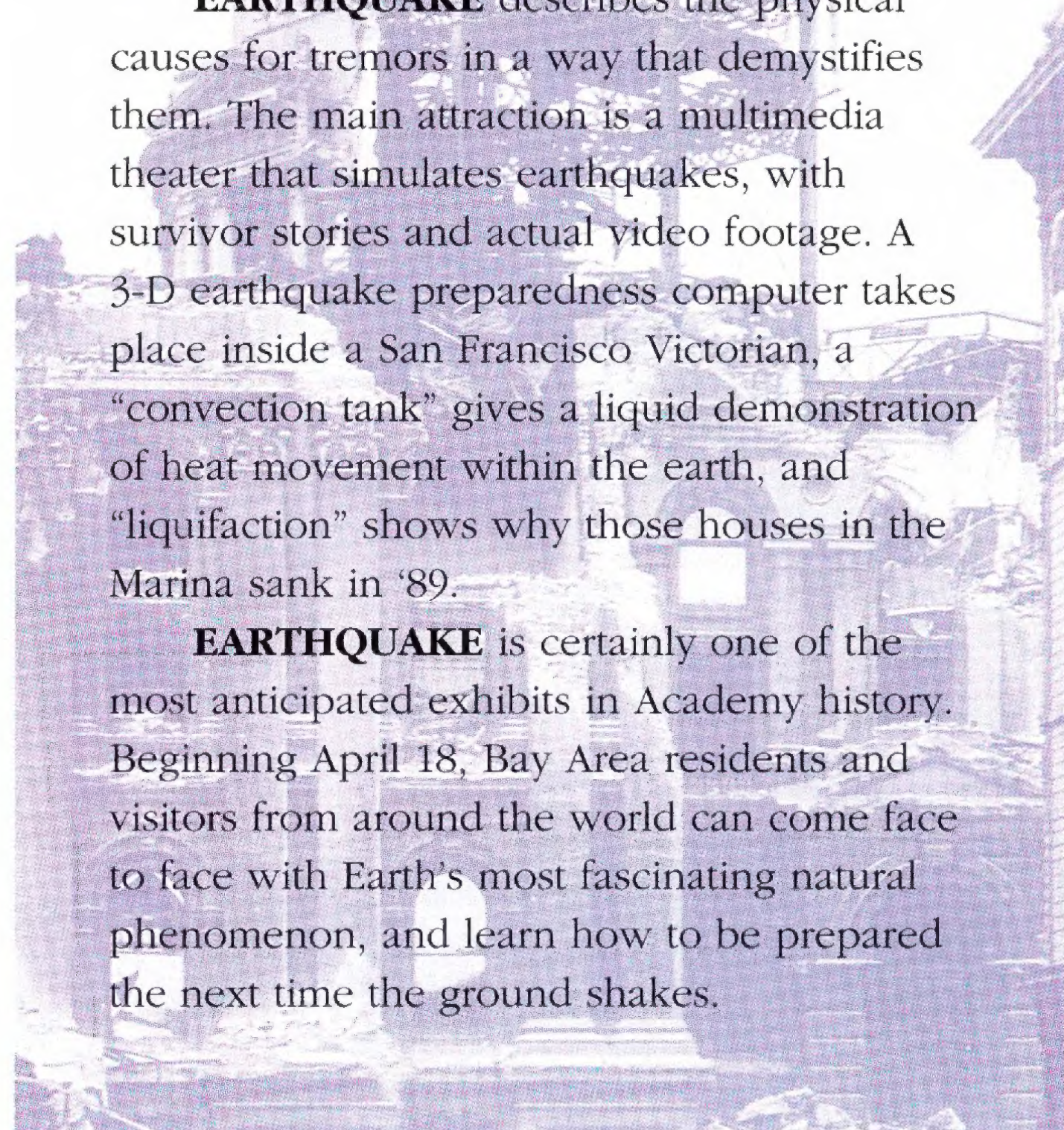


PHOTO: COURTESY OF GIADYS HANSEN

Space Art: The World from Orbit

Through June 28

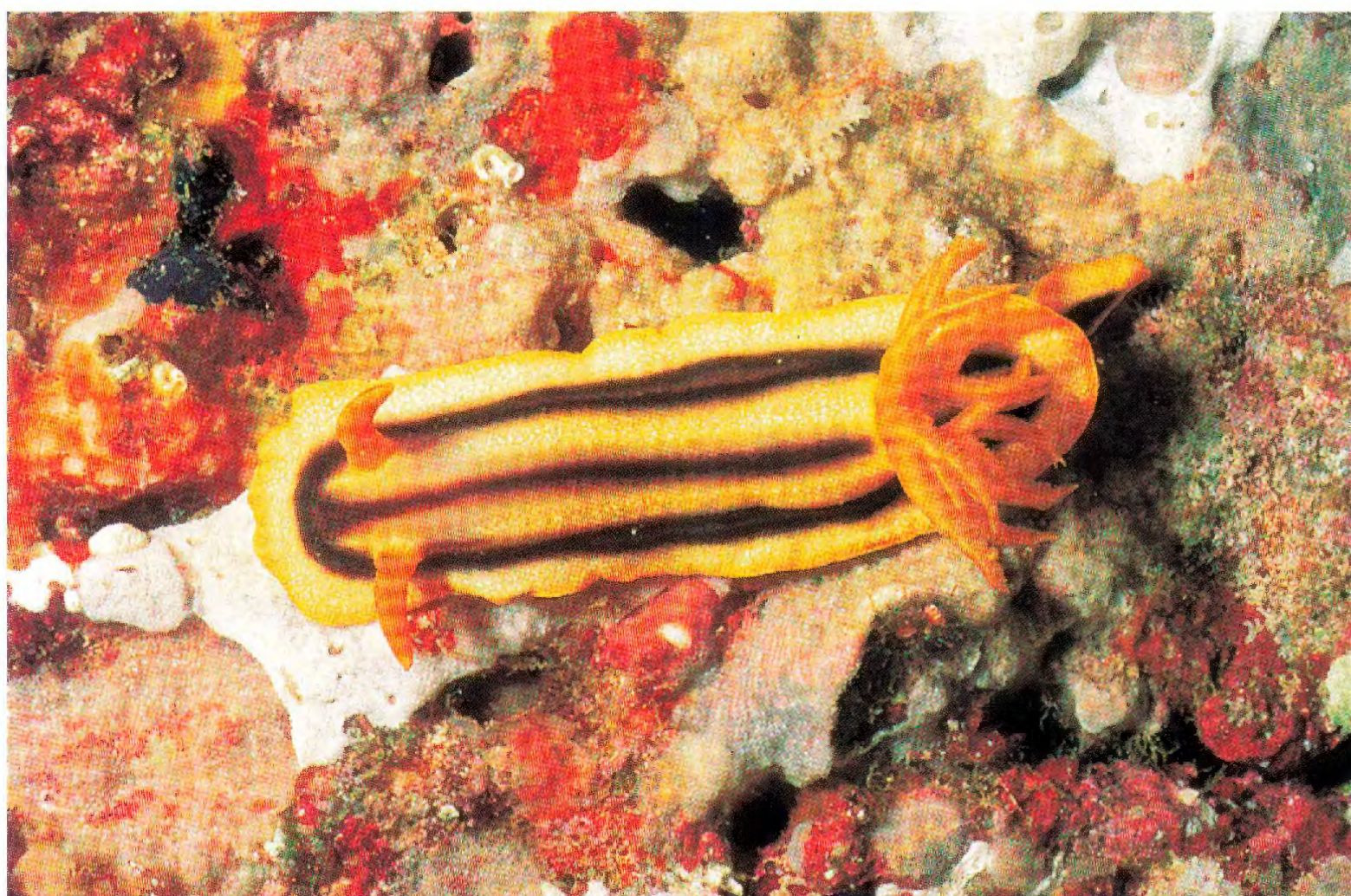
This exhibit is a dazzling collection of NASA photographs of Earth taken from space. The photographs reveal our planet and the impact of human activity from an incredible perspective rarely seen in such detail.

The series begins with some distant images in which Earth resembles a giant blue ball, and gradually reveals a closer view. The final pictures show the extensive human imprint on the Earth, including remnants of ancient civilizations, huge man-made structures, and the modifications humans have made to geography and the environment.

Department Profile:

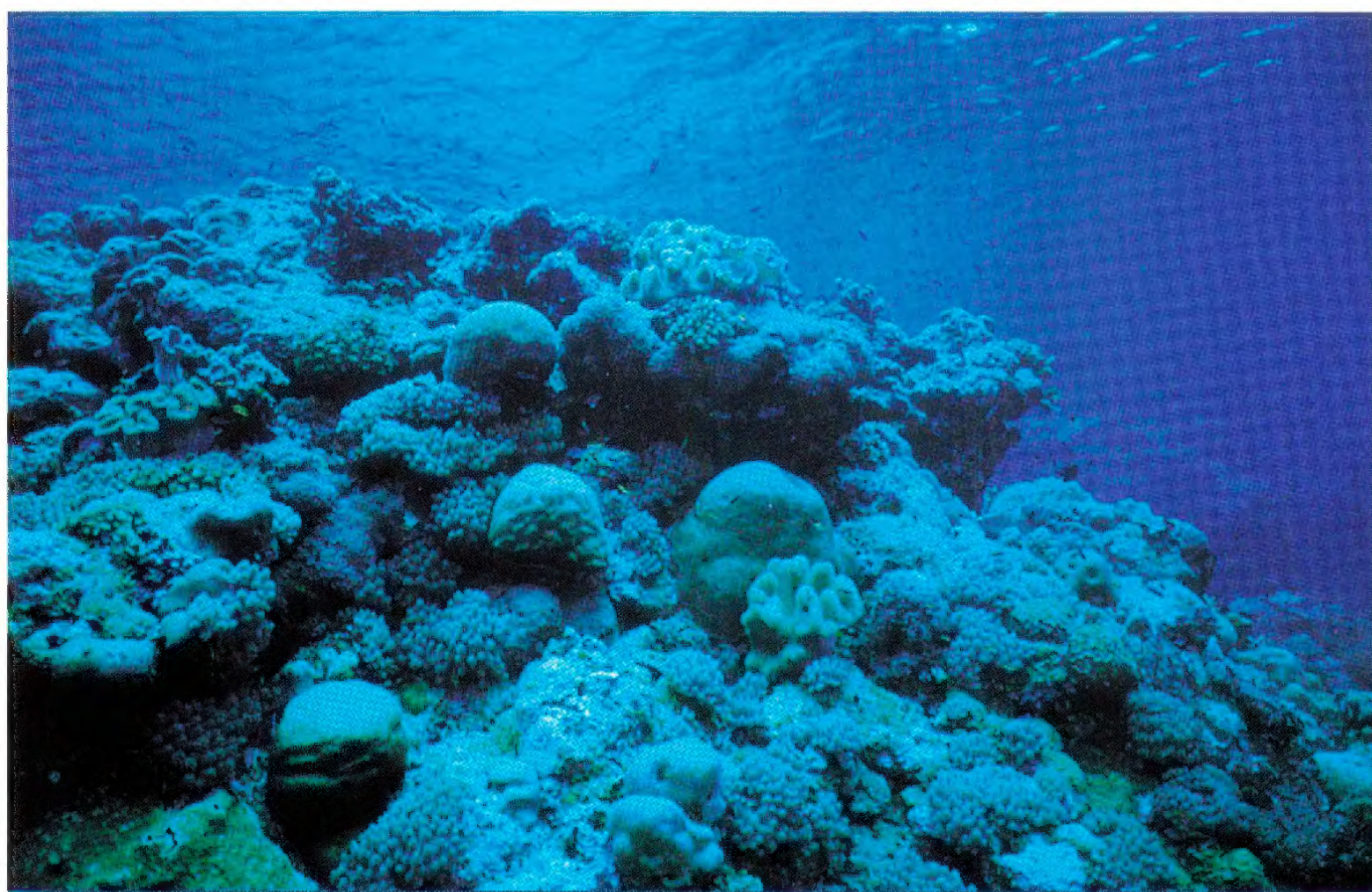
Invertebrate Zoology & Geology

The Department of Invertebrate Zoology & Geology is the largest of the Academy's eight research departments. There are five curators, all of whom conduct research that includes field work around the world and work based on the Academy's vast collections. Gary Williams, Department Chair, works on soft corals, and Rich Mooi



Nudibranch (*Chromodoris joshi*)

devotes his time to sand dollars and other echinoderms. Terry Gosliner, Acting Director of Research, works on opisthobranch mollusks, mostly nudibranchs. Patrick Kociolek, CAS Executive Director, holds the Hanna Chair of Diatom Research. Peter Rodda recently retired after 27 years of



Coral Reef, Solomon Islands

service to the Academy, and a search is currently underway for his replacement as Curator of Paleontology. There are three post-doctoral fellows currently working in the department: Sarah Spaulding and Elisabeth Fourtanier in diatoms, and Angel Vald  s, who works on nudibranchs.

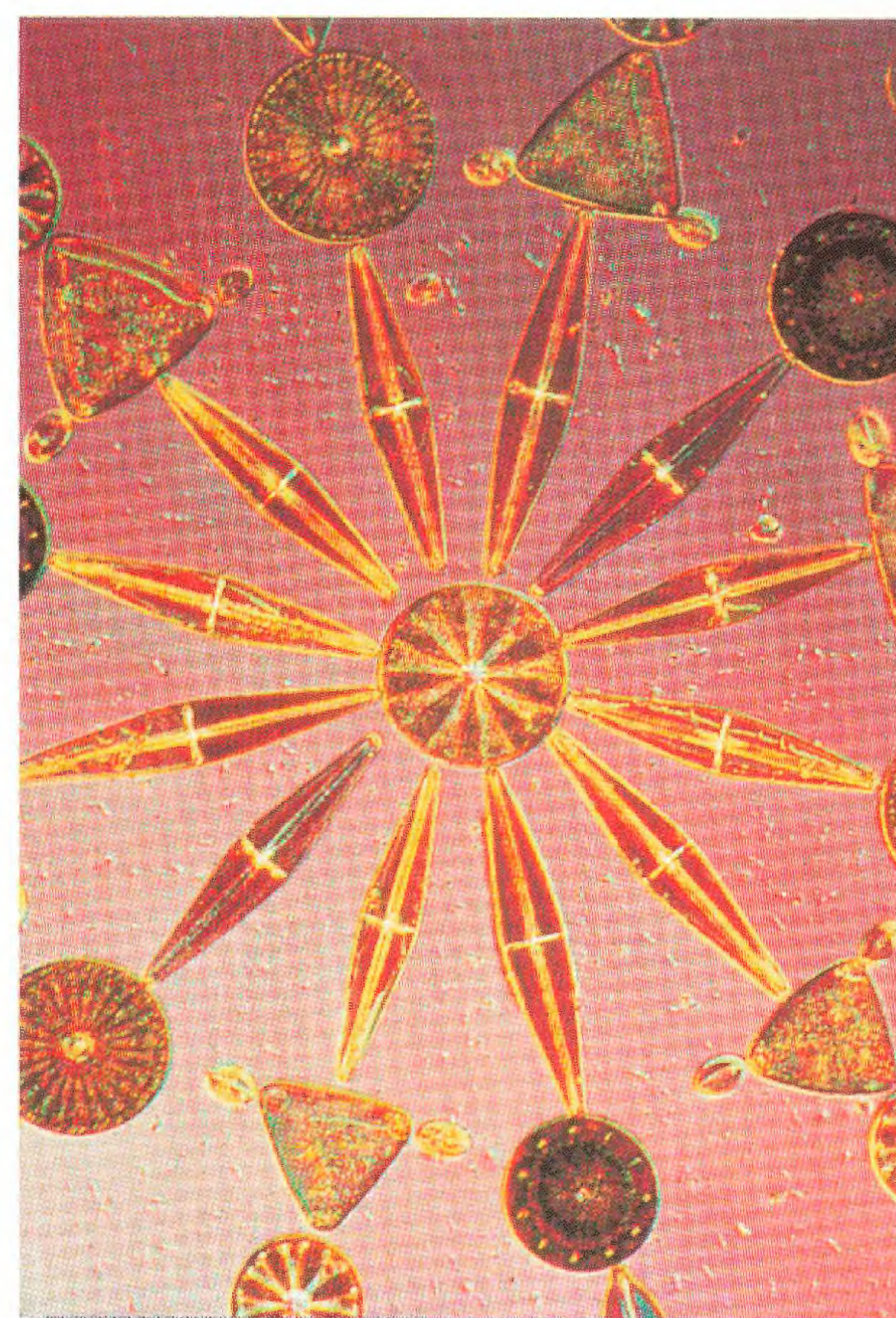
Field work plays an important part in the research and collection activities of the department. Every year, staff conduct research and collect material from diverse localities from Madagascar to Nevada, and from the Gal  pagos to Belize.

Staff also participates in the Academy's travel and teaching programs, leading trips and teaching classes in evolution, ecology, invertebrate biology, geology, and mineralogy.

Collections from this department are on display in the halls of Life Through Time and Minerals at the Academy. Staff members are involved in both the new *Earthquake* exhibit, opening April 18, 1998, and the Invertebrate Hall, scheduled to open in late 1999.

IZ&G occupies the 2-story west wing of the old building at the Academy. The department's space is shared with the staff of Scientific Publications and with Michael Ghiselin, Senior Research Fellow and head of the Center for the History and Philosophy of Science.

There are four collections within the department. Bob Van Syoc studies barnacles and is Senior Collections Manager for the recent invertebrate collection, which includes both wet and dry specimens. Jean DeMouthe is Senior Collections Manager for the geologic collections, which include the fossils, diatoms, and minerals. The support staff includes five curatorial assistants and two secretaries. Graduate and undergraduate students work with various staff members on projects in invertebrate biology, diatoms, and museum studies. Numerous research associates and volunteers fill out the roster of this very active and dynamic department.



Arranged diatom slide



Wulfenite

PHOTO: TERRY GOSLINER

PHOTO: GARY WILLIAMS

PHOTO: PATRICK KOCIOLEK

PHOTO: R. EISENHARDT

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CAS Pubs
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Apr/May 1998

The Academy of Sciences and Chevron present: **Raptors: A Flight Above**

In celebration of the birds of prey featured in *Hunters of the Sky*, the Academy and Chevron are proud to present the educational programs of the Raptor Education Foundation. Hailing from Colorado, the Foundation will make its only visit to California this year with its live, non-releasable raptors.

Presentations will take place twice daily in the auditorium at no extra cost to visitors, and will include detailed descriptions of raptor biology, habitat, and important role in food chains. The stars of the show are the birds themselves: eagles, owls, and hawks. The Raptor Education



Ferruginous Hawk

Foundation is dedicated to providing quality environmental education programs to audiences of all ages.

Friday, April 10 through Sunday, April 19
10:45 am and 2 pm (Note: Friday, April 10, 2 pm only)
Morrison Auditorium

Return to Tradition

The Revitalization of Turkish Village Carpets

a book by June Anderson,
Folk Arts Supervisor at the Academy

Return to Tradition describes the rebirth of the almost-extinct cultural tradition of hand knotted Turkish carpets, and the lives of women in remote villages on the Aegean Peninsula who make them. It is the story of a unique project called DOBAG that reintroduced natural dyes, restored the integrity of this ancient folk art, and formed village cooperatives to organize production and marketing of the carpets. It also includes information about the designs, colors, motifs, and

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Programming Schedule for Hunters of the Sky

All presentations will take place inside *Hunters of the Sky* unless otherwise noted.

Sat, April 4 11am & 2 pm Radio Tracking

Discover how migrating birds are monitored throughout California and beyond. Presented by Golden Gate Raptor Observatory.

Tues, April 7 11am & 2 pm HawkWatch

Discover how research is conducted on local and migrating populations of raptors. Presented by Golden Gate Raptor Observatory.

Wed, April 8 11am - Noon Hibou the Great Horned Owl

Come face to face and hear the story of this rehabilitated bird from WildCare in San Rafael.

Sat, April 18 1 pm The California Condor

Jane Hendron from the USF& W will tell the harrowing story of bringing this species back from near extinction

Sat, April 25 11am

Come face to face and hear the story of this rehabilitated bird from WildCare in San Rafael.

Sun, April 26 11am & 2 pm Storytelling

Kathy Martinez celebrates our fascination with these magnificent animals by telling tales from around the world.

Sun, May 3 11am & 2 pm Raptors!

Your last chance to get an intimate look at live birds of prey. Presented by the Lindsay Wildlife Museum.

Intern Presentations:

Daily: Noon & 3 pm The Biology of Owls

Unravel the mysteries of the owl's night hunts when we dissect an owl pellet.

Director, con't. from page 2

should make every reasonable attempt to find alternative means to visit the Park. The Academy strongly supports new Muni routes to the Park, shuttles within the Park and a cultural shuttle that could deliver patrons to the various institutions throughout the city. These are just some of the ideas advocated by the ordinance and they make a lot of sense.

The Golden Gate Park Revitalization Act will be good for the Academy, the de Young and the many other attractions in the area. We at the Academy recognize that these measures on the June ballot are just the beginning of what could, and should, be an exciting renaissance for Golden Gate Park.

We are looking forward to success in the polls which can only mean success for our Park and home and I am pleased to have the opportunity to help lead the Academy through these exciting times.

April

Animals from DownUnder

With Professor Douglas Cheeseman, Jr.

Join zoologist, educator, traveler, and photographer Douglas Cheeseman Jr. for a lecture and slide presentation on the animals of Australia. On each of their six trips to Australia, Doug and his wife spent time with local naturalists and biologists involved in conservation and research. The lecture will cover the natural history of the mammals, birds, and reptiles from Queensland in Lamington National Park, Cairns and the Atherton Tablelands, and many other sites.

Professor Cheeseman teaches zoology and ecology at De Anza College. He and his wife started Ecology Safaris in 1980. They are also active in conservation with the Santa Clara Valley Audubon.

April 8, 2 pm & 7:30 pm



PHOTO: DOUG CHEESEMAN

Western Grey Kangaroo

Please present your membership card at the front entrance and again at the auditorium. Members who wish to bring guests to the lecture can now purchase guest tickets at the membership desk at the front entrance before entering the auditorium. Guest tickets are \$10 each for adults and \$5 for children. Please note: only the main CAS entrance will be open for the members evening lecture.

Academy, SF Zoo, & Exploratorium Honor Member Mothers

Academy member mothers and their member families will have free admission to the Exploratorium and SF Zoo by showing their active Academy membership card. In turn, Exploratorium and SF Zoo member mothers may come to the Academy by presenting their Exploratorium or SF Zoo member card at the Membership Booth at the main entrance. This offer is valid for Mother's Day only.

May 10, Mother's Day

You are cordially invited to the annual

Open House for Members

Behind-the-Scenes in the Research Departments • Entertainment • Prizes for Children • Open Café

Join us for an evening of discovery and excitement. If we could write thousands of thank you notes to each of you for your continued support and interest in the Academy, we would. Instead, we invite you to join us on May 13 for this special event. Dinner will be offered at a nominal fee at the Academy's cafe.

Wednesday, May 13 from 6 to 9 pm

Members Open House is an exclusive benefit for members only. Guests of Members are \$10 for adults and \$5 for children. This is a perfect time to invite your friends to become members so they may attend this event with you.



PHOTO: DONG LIN

Earthquake Exhibit Preview

April 17

Join us on April 17 from 5 pm to 8 pm and be among the first to experience this exciting new permanent exhibit. You'll also enjoy continuous films about earthquakes in the Morrison Auditorium and light refreshment in African Hall from 5:30 to 7:30 pm.

Upcoming Members Meeting

June 10 Discovery of Olmec Monuments
with Dr. Sheldon Breiner

Many, many thanks to the following members who have upgraded to a higher category.

Ann & Gordon Blumfield
Ms. Marilyn Brennan
Drs. Devron & Valerie Char
Dr. Walter Chestnut &
Dr. Sheila Cowen
Dr. & Mrs. William Clark
Ms. Sabra Drohan
Ms. Irene Fenton
Mr. & Mrs. Weston Fisher
Maribel & Jack Frazer
Mr. & Mrs. Donald Gee
Mr. & Mrs. Brian Gustafson
Dr. J. Steven Harrison
Mrs. Margaret Hegg
Mr. & Mrs. David Hirtzel
Mr. & Mrs. Paul Ilg
Ms. Carolyn Infante
Miss Carolyn Johnson
Mr. John Lambert
Mr. & Mrs. Ron Lamson
Mr. & Mrs. Jude Laspa

R. E. Leatherman &
Jim Watt
Linda & Wolfgang Liebelt
Mr. Ronald Lipsy
Dr. Anne MacPherson
Ms. Kathryn Kendrick McNeil
Mrs. Barbara Meislin
Dr. & Mrs. Gordon Moore
Mr. & Mrs. Ian Nadel
Dr. & Mrs. Amos Newton
Mrs. Elizabeth Spencer Pfau
Simone & Ira Poretsky
Mr. & Mrs. Robert Reed
Mr. Gary Roberts
Ms. Barbara Sheng &
Mr. Bud Cantos
Mr. & Mrs. George Smith
Mary Tilman &
Ruth Johnston
Mr. & Mrs. Greg Wageman

The Wildlife Talks: From Mountain Peaks to Coral Reefs

*presented by Wildlife Conservation Society and
California Academy of Sciences*

For tickets, please use the order form. For more information, please call (415) 750-7128 or visit the Wildlife Conservation Society website at www.wcs.org.

Life Below the Sea: The Degradation and Restoration of Coral Reefs

with Tim McClanahan

Coral reefs around the world are rapidly being degraded by misuse and overuse. Even the most remote reefs are experiencing dramatic changes that threaten their ecological

services and biological diversity. In his talk, Dr. McClanahan will outline the history of the global problem using dramatic slides of the Indian Ocean and Caribbean to show the causes of the problem, and to discuss possible solutions to

restore and conserve coral reefs.

Apr. 9, 7:30 pm (6:30 reception)

Peccaries, Parrots and Spectacled Bears: Wildlife in South America's Heartland

Located practically in South America's geographic center, Bolivia contains an extraordinary diversity of habitats and wildlife. One of WCS's greatest conservation achievements is the creation of the eight-million acre Kaa-Iya Gran Chaco National Park. The park is four times the size of Yellowstone and contains some 80 species of mammals, including the rare Chacoan peccary, thought extinct until rediscovered in 1975. Dr. Taber will present this veritable zoologist's heaven and discuss how it blends the needs of its wildlife and the indigenous people who have called the Chaco home for centuries.

June 4, 7:30 pm (6:30 reception)

For Lecture only

Member: \$6 per lecture
Nonmember: \$10 per lecture

For Lecture and Reception

Member: \$36 per lecture/reception/
Non-Member: \$45 per lecture/reception

The Wildlife Talks lecture series is co-sponsored by California Academy of Sciences and the Wildlife Conservation Society.

Special Lectures

Raptors: Beauty, Biology, and the Future

with John Hendrickson

Nationally-recognized and award-winning nature photographer John Hendrickson will present his finest works in a stunning celebration of raptors. Many of the photographs contained in the *Hunters of the Sky* exhibition were taken by Mr. Hendrickson, and are the culmination of many years of training and honing his skills to precise perfection caught in time. These images provide a remarkable arena in which to discover the important role raptors play in nearly every ecosystem, their fascinating adaptations, and the constant challenges raptors must face to survive. Don't miss this special opportunity to come a step closer to these *Hunters of the Sky*. Suitable for all audiences.

April 14 at 7 pm

Cost: \$3 members / \$5 nonmembers

Song for the Blue Ocean

with Carl Safina

The landlocked world we inhabit is only a fragment of the Earth's living space. Blanketing over seventy percent of the planet's surface is open water, creating a vast realm of life that we know so little about, and that so many of us danger-

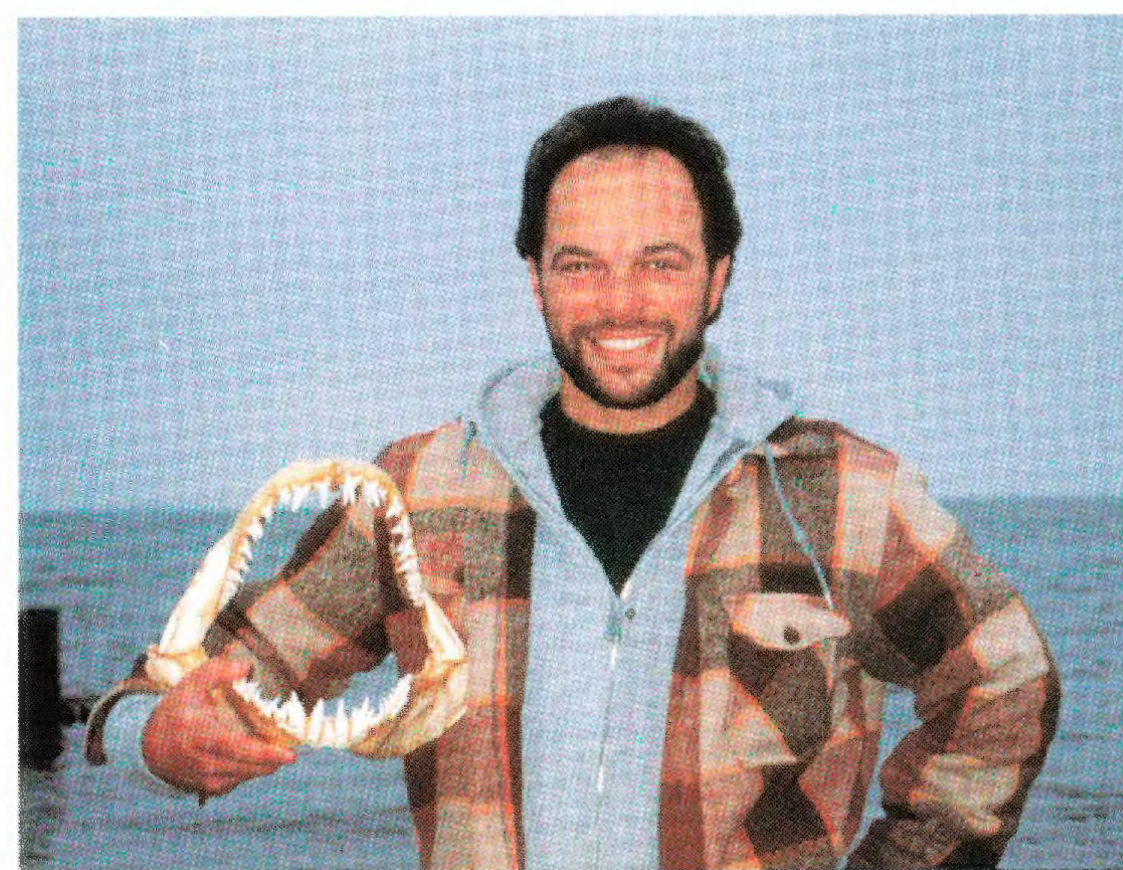
ously exploit without knowledge of consequence.

In honor of the United Nations' declaration of 1998 as *International Year of the Ocean*, the



This barn owl has lowered its head and spread its wing in an attempt to appear larger in order to block its nest.

PHOTO JOHN HENDRICKSON



Carl Safina

Academy is proud to host Dr. Carl Safina, Adjunct Professor at Yale University, to speak on the state of our seas today. Dr. Safina, who has spent his life traveling and studying the wealth of life in the world's oceans, will present slides and evidence on the decline, abuse, and potential recovery of oceanic resources along the world's coasts, including our own.

After the presentation, Dr. Safina will be signing his new book, *Song for the Blue Ocean*.

Tuesday, April 21 at 2:30 pm (auditorium)

Free with Academy admission. Book-signing will follow lecture.

The California Condor

In 1987, the last wild California condors were captured and the US Fish & Wildlife Service embarked on a landmark captive breeding journey, the outcome of which no one would know for many years. The harrowing story of the condor's brush with total extinction serves as one of the most moving and revealing indicators of Americans' changing views about the environment. The status of the condor has dramatically improved over the last decade, but the issue of reintroduction still remains controversial. Nationally renowned speaker and researcher Robert Mesta, coordinator of the condor program, will explore and explain the program that in many ways crystallizes the dilemma of dealing with endangered species.

Presented in conjunction with the *Hunters of the Sky* exhibit, which prominently features the story of the California condor.

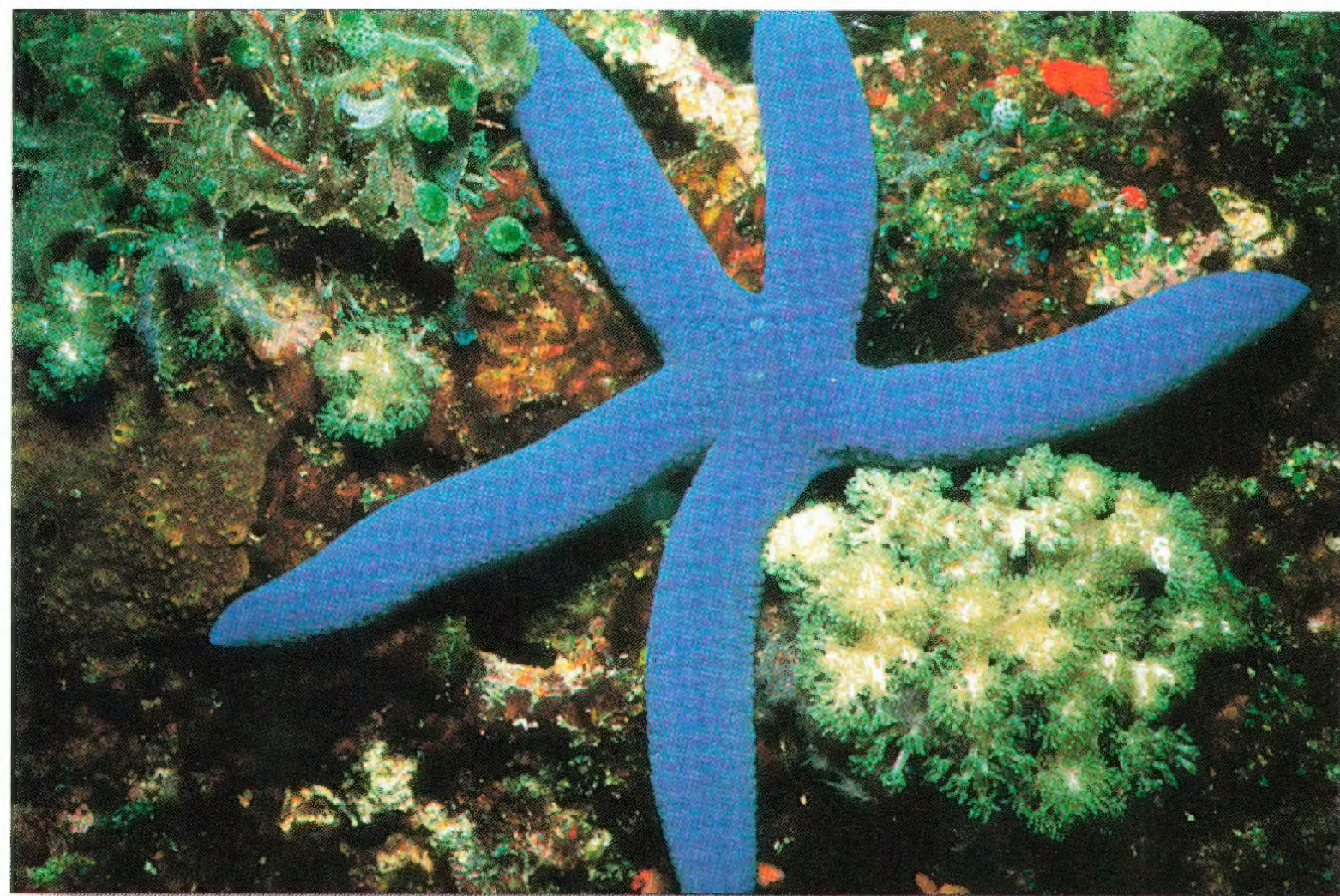
Wednesday, April 1 at 7 pm (auditorium)

\$3 Members/\$5 Non-Members

Adult Education

Join the fun at the Adult Education workshops!

Abyssal Enigmas: Invertebrate Animals of the Deep Sea



Starfish (*Linckia laevigata*)

Every year, bizarre unidentified species are discovered in the depths of the sea — Earth's last great frontier. View slides and specimens from Academy collections. Learn about swimming sea cucumbers, delicate near-transparent sea urchins,

bioluminescent shrimp, strange "vampire squid" (on whose habits we can only speculate), gutless worms living next to hot volcanic vents, and a host of other abyssal denizens not found in your average zoo. With these examples, explore extraordinary adaptations to a world of eternal darkness and cold.

April 15 (Wednesday), 7:00 - 10:00 pm

Instructor: Rich Mooi

\$10 members/\$15 non members

The Evolution of Evolution

The contemporary concept of evolution did not appear *de novo* out of the fertile imagination of one sickly 19th-century English squire. In fact, biological evolution was not a new idea in 1859. Even as Darwin labored over his private notebooks, the concept was being widely debated in the popular press and dissected in academic journals. Charles Darwin was not even the first Darwin to publish on the subject. And one of his correspondents on the other side of the world was simultaneously developing the same theory. Other scientists, natural philosophers (both predecessors and contemporaries) proposed a variety of evolutionary concepts. But the vigor of Darwin's explication assured the survival (and descent with modification!) of the present "Darwinian" mechanism of evolution. In this lecture, Dillon reviews the history and evolution of the concept of evolution itself.

April 22 (Wednesday), 7:00 - 9:00 pm

Instructor: John Dillon

\$10 members/\$15 non-members

Wonders of the Hubble Telescope

View tremendous images and distant objects with the naked eye from a warm seat in the Academy's computer lab. Among other explorations of the visual and the virtual, this class explores the Hubble Space Telescope Site on the Internet. See how information, animation and scientific exploration are presented on the web, the newest information resource.

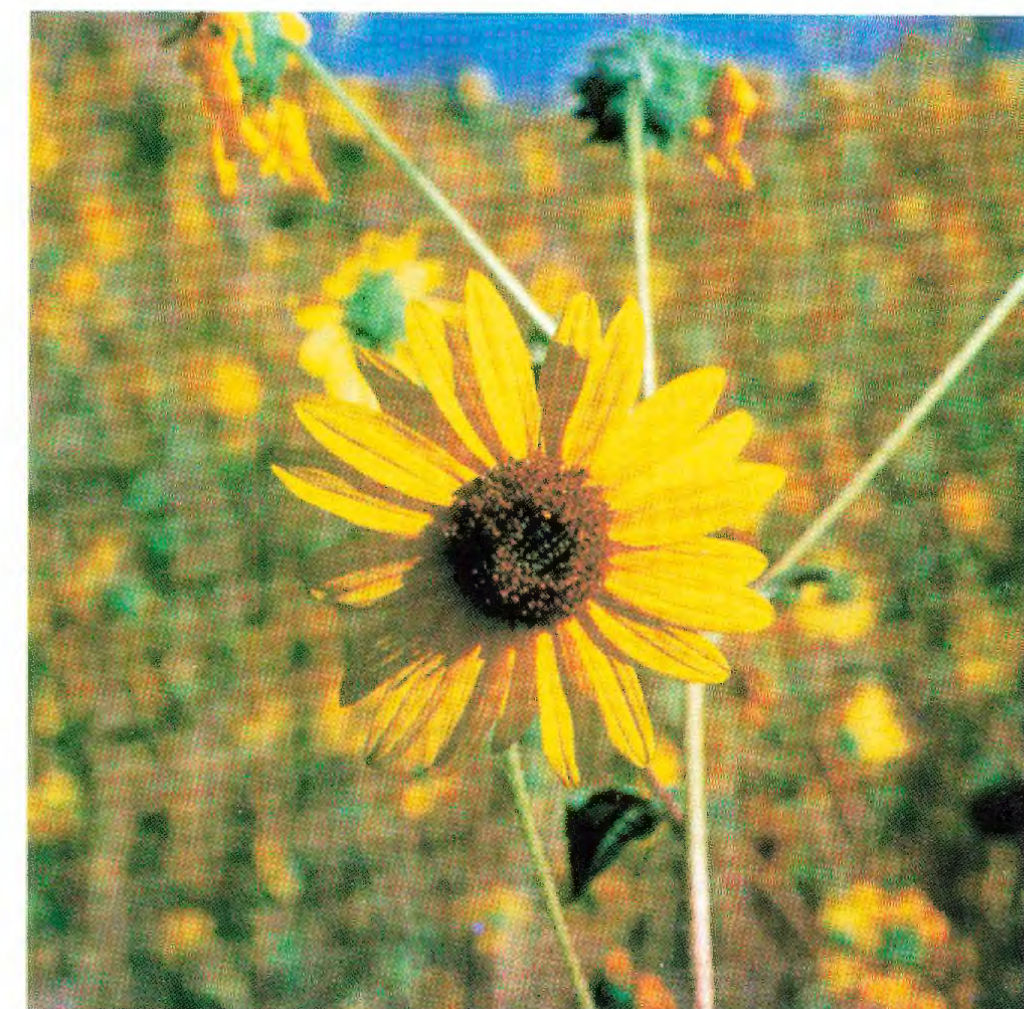
May 1 (Friday), 7:00 - 9:00 pm

Instructor: Darryl Stanford

\$10 members/\$15 non-members

Sunflowers Demystified

The Sunflower family—Asteraceae—is the largest family of flowering plants, comprised of some 25,000 species, including daisies, asters, dandelions, and many others. The diversity is amazing. Growth forms vary from



Sunflower (*Helianthus annuus*)

PHOTO: G. C. WILLIAMS

PHOTO: TOM DANIEL

minute annuals to shrubs, lianas and canopy trees. Habitats include nearly everywhere on Earth - beach dunes to marshes to mountain meadows to alpine fell fields. The family is also notorious for its complexity, making it a difficult challenge to students of wildflowers. This day hike introduces the family to beginners through field study of some of the 85 species of Asteraceae that occur at Pepperwood.

May 30 (Saturday), 10:00 am - 4:00 pm
Instructor: Greg de Nevers
\$20 members/\$25 non-members

Family Program

Bugs for Kids

This morning class introduces the joys and curiosities of entomology to families with children ages eight and older. Activities in Golden Gate Park and inside the California Academy of Sciences will show how to find, collect and mount insects. This is the perfect introduction to bug collecting as an exciting and enriching scientific hobby.

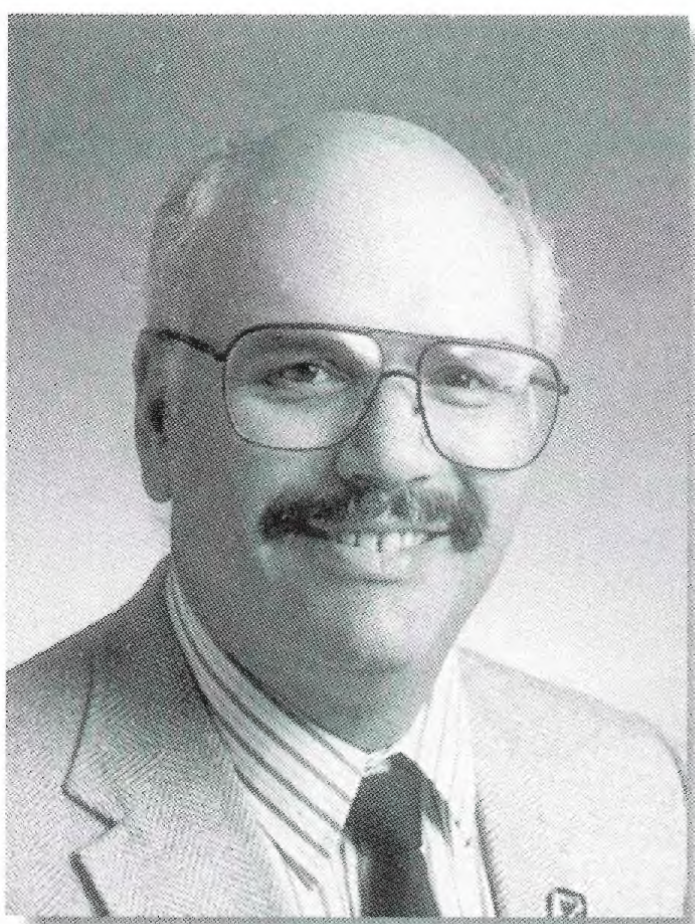
May 9 (Saturday), 9:00 am - 12:00 pm
Instructor: Edgar G. Lehmann
\$15 adults/\$10 children, members
\$20 adults/\$15 children, non-members

Benjamin Dean Lectures

The Spring 1998 Benjamin Dean Lecture Series continues an armchair tour of the "new" solar system with a look at the "Exploration of Saturn" in April and "Missions to Mars" in May.

Exploration of Saturn

with Stephen Edberg



Stephen J. Edberg
Jet Propulsion Laboratory

In October 1997, the Cassini robotic spacecraft, carrying the Huygens Titan Probe, began a journey of many years to reach and explore the exciting realm of Saturn, the most distant planet that can be seen easily with the unaided human eye. Stephen J. Edberg, discipline scientist on the Cassini Project, will join us from the Jet Propulsion Laboratory to discuss this international venture.

Scientists from NASA, the

European Space Agency (ESA), the Italian Space Agency (ASI), and several separate European academic and industrial partners will be cooperating to answer questions about Saturn. Topics of discussion will include the planet's atmosphere, interior, vast ring system, numerous icy satellites, huge magnetosphere, and the intriguing moon Titan.

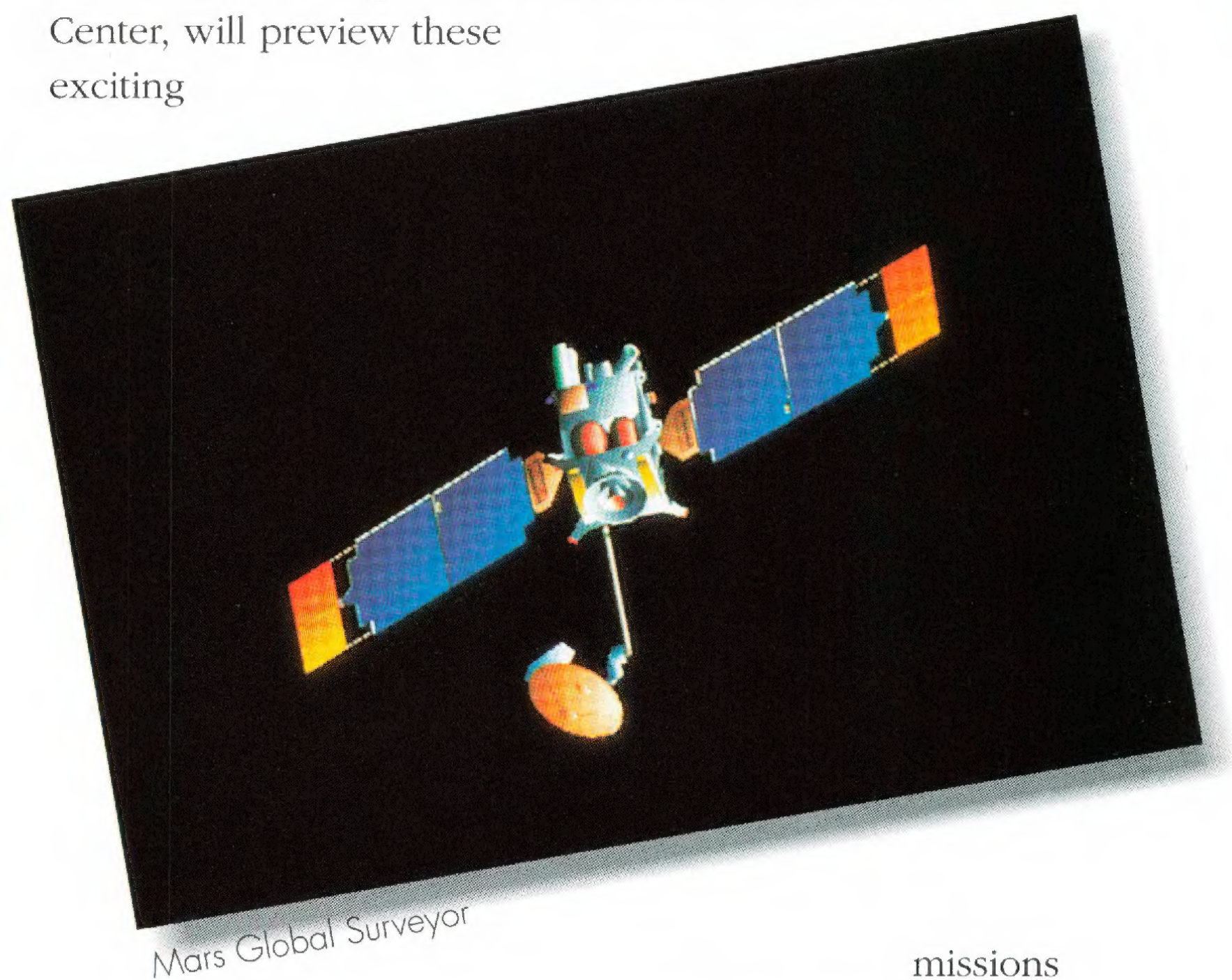
Perhaps the most tantalizing of these objects is Titan.

Slightly larger than the planet Mercury, this largest moon of Saturn has a brownish-orange, hazy atmosphere of nitrogen, methane, and a complex array of carbon-based molecules denser than that of planet Earth. The atmosphere may be hiding a frigid surface that could contain layer upon layer of substances such as frozen methane and ammonia. This could resemble the chemical factory of primordial Earth and give valuable insights into the history of our own planet.

Missions to Mars

with Geoff Briggs

The landing by Pathfinder on Mars last July 4 was greeted enthusiastically by the American public, yet probably few realize that NASA has re-initiated a full scale program of Mars exploration. Dr. Geoff Briggs, the Scientific Director of the Center for Mars Exploration at NASA-Ames Research Center, will preview these exciting



Mars Global Surveyor

missions

and anticipated results.

The Mars Global Surveyor was launched in 1996, and is currently aerobraking its way into a mapping orbit around Mars. It will provide new mapping data needed to choose landing sites for subsequent missions. NASA is examining the possibility of sending human crews to Mars in the future to extend the search for evidence of life. Going beyond the domain of simple robotic spacecraft, astronaut geologists and paleontologists could visit sites of exo-biological interest that are inaccessible to robots, and would be able to sample at great depths below the permafrost where it is expected that liquid water exists.

Benjamin Dean Lectures in the Morrison Planetarium:
Tuesday April 7, 7:30 pm, Stephen Edberg, \$3
Tuesday May 19, 7:30 pm, Dr. Geoff Briggs, \$3

Planetarium Information Hotline: (415) 750-7141

These lectures conclude the Spring 1998 Benjamin Dean Lecture Series on "The New Solar System." This summer, Morrison Planetarium will feature three evenings of storytelling under the stars. Anita Jones will begin the series on June 23, followed by Dr. Amy Spaulding on July 14 and concluding August 18 with Ann Rovetta.

BioForum for High School Teachers

The California Academy of Sciences' BioForum, now in its thirteenth year, provides professional development to science teachers around the country. On April 18, BioForum will focus on Theoretical Issues in Plant Biology. The four presentations will be followed by a panel discussion.

BioForum is funded in part by: Genentech, Inc.; ALZA Corporation in honor of Rudy A. Peterson; and Dr. and Mrs. John S. Hensill. The BioForum website is a partnership between Access Excellence, a program sponsored by Genentech, and the California Academy of Sciences.

Theoretical Issues in Plant Biology

Moderator: Frank Almeda, Ph.D., McAllister Chair and Senior Curator of Botany, California Academy of Sciences.

Speakers: Harold A. Mooney, Ph.D., Paul S. Achilles Professor of Environmental Biology, Department of Biological Sciences, Stanford University; Academy Fellow.

Karl J. Niklas, Ph.D., Professor, Plant Biology, at Cornell University, Ithaca, New York.

Dr. José Sarukhan, Universidad Nacional Autonoma de Mexico; Visiting Professor, Center for Conservation Biology, Stanford University.

Bruce H. Tiffney, Ph.D., Botanist and Professor, Department of Geology, at University of California, Santa Barbara.

Saturday, April 18, 8:30 am to 4 pm
Morrison Auditorium

Registration: \$15 (morning refreshments and lunch are included)

To register, please call the Education Department at (415) 750-7100 or e-mail klundstrom@calacademy.org.

Conversations at the Herbst

City Arts & Lectures, Inc. presents
CALIFORNIA ACADEMY OF SCIENCES
Conversations at the Herbst Theatre 1998

All Programs at 8:00 pm

Wednesday **Sir Martin Rees**
April 22 Astrophysicist
Before the Beginning – Our Universe and Others
In conversation with Keay Davidson

Wednesday **Dr. Paul Ehrlich and Bill McKibben**
May 27 *The Population Bomb; Maybe One: An Environmental Explosion* *Argument for Single-Child Families*
In conversation with David Wright

Wednesday **Sebastian Junger**
June 3 Journalist, Adventure Writer
The Perfect Storm
In conversation with Roy Eisenhardt

Monday **Dr. Michael Gazzaniga**
June 8 Neuroscientist
Nature's Mind; The Interpretation of Things Past
In conversation with Dr. Philip Zimbardo

This series is made possible by a grant from the Richard and Rhoda Goldman Fund &

To order tickets, please call City Box Office at (415) 392-4400.

California Academy of Sciences does not process ticket orders for these lectures.

Outstanding Volunteer

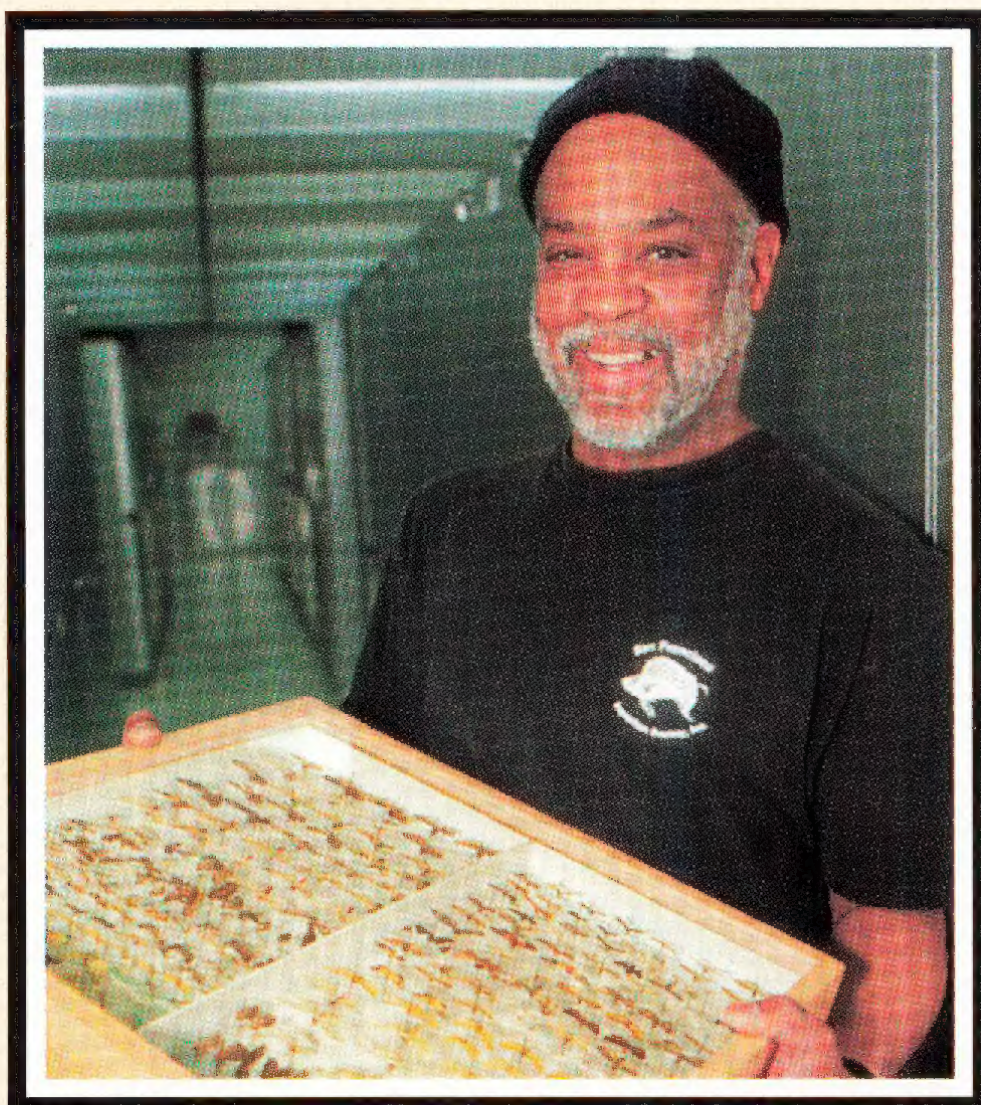


PHOTO: DONG LIN

Lanier Hines is a man of varied interests. An aquarist, diver, and multi-talented musician, he runs a business importing and exporting aquatic plants from Southeast Asia.

When Hines applied to be a volunteer in 1995, the Academy research departments were in the process of computerizing the collections. Hines agreed to take on a portion of this monumental task and in the past three years has made over 80,000 entries. He has also been counting specimens and assisting in organizing the entomology collections.

Hines says he has gained a lot of knowledge and experience, while the department staff is happy to have acquired such a valued and dedicated colleague.

With millions of entries still to be made in the databases of each collection, we'll not soon run out of opportunities. Seize one today by calling the Volunteer Office at (415) 750-7153 for a volunteer application.

Traditional Arts of the World

Explore cultural traditions from around the world in these one-hour presentations held in the auditorium. All programs take place at 1 pm on select Saturdays and last about an hour. Presentations are free after general admission to the museum. For further information on these and other Traditional Arts programs, contact Almudena Ortiz at (415) 750-7165. The Traditional Arts program is funded by the Paul L. and Phyllis Wattis Foundation.

April

April 4 – Highlife Music from Ghana

The African ensemble Hedzoleh Soundz plays Ghanaian music on traditional instruments such as the xylophone, brekete, and shekere. In their performance the group introduces the audience to the country's rich musical history and explores how the roots of African music have influenced a contemporary and innovative genre known as "highlife."

April 11 – Eastern European Gypsy Music

Over the centuries, typical gypsy music has absorbed stylistic traits from a variety of cultures. Violinist Yakov Stanislavskiy and pianist Alla Gladysheva perform a medley from the Gypsy repertoires of Russia, Hungary, and Romania.

April 25 – Papyrus-Making Demonstration

The ancient Egyptians processed the papyrus plant into a writing material over 5000 years ago. Today many species of papyrus are cultivated by Dr. Hassan Ragab at the Giza Papyrus Institute. Mohamed Ragab shows us how parchment is made from raw papyrus and explains its historical importance in Egypt.

May

A Special Month of Ohlone Indian Arts

During the month of May we focus on the artistic heritage of the First Californians. Prior to the arrival of Spanish soldiers and missionaries in the late 1700s, Central California had the densest Indian population north of Mexico. Over 10,000 people lived in the coastal areas of Point Sur and the San Francisco Bay Area. The Costanoan/Ohlone Indians were the original inhabitants of Yerba Buena. Ohlone is a language category; about 45-50 small tribes, such as the Rumsien and Mutsun, speak a dialect of Ohlone. Ohlone people now live in modern urban communities yet still maintain many of the old customs and craft skills handed down from the elders.

May 9 – Basketweaving

Marie Bonillas demonstrates the coiling basketry technique using willow sticks and sedge.

May 16 – Ethnobotany

Ted Bonillas discusses the dietary, medicinal, and ritual uses of native plants, and shows samples he has collected locally, such as rattlesnake weed, aloe vera, sage, and altaberry.

May 23 – Soaproot Brushes and Cordage

Mona Garibay makes brushes from the fibrous bulb of the soaproot plant. Sabrina Garibay uses the thigh-spinning method to make cordage from dogbane fibers.

May 30 – Acorn Preparation

Ruth Orta pounds acorns (from the black oak) into a coarse flour in preparation for soup mush.

Tradition, con't. from page 5

symbolism of the carpets. These qualities continue to evolve aesthetically in response to the weavers' needs and the consumer market. Although there are many books on antique rugs, this one is special in that it provides valuable information on contemporary carpet-weaving in Turkey, and on the village women who make them.

In Turkish villages today, very little has changed in the technology of carpetmaking since its early beginnings. Women still use the drop spindle for spinning, and weave on the same type of loom as their ancestors. Villagers shear the sheep, card the wool, and dye the skeins much as their forebears did in ancient times. These traditional folkways have survived to this day, an unbroken link with the past.

To order your copy of *Return to Tradition*, please call the Academy's Anthropology Department at (415) 750-7163.

***Return to Tradition* is published by University of Washington Press with the California Academy of Sciences.**



June Anderson with Turkish carpetweavers.

PHOTO LINDA ROBINSON

Morrison Planetarium

The Academy's Morrison Planetarium, now 45 years old, offers a variety of multimedia astronomy presentations to suit a wide range of ages and interests. Each show is presented by a lecturer who is more than happy to answer questions about astronomy after the show.

April-May Sky Show Schedule

Sky Show	Weekday	Weekend
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April

The Sands of Mars <i>ending date: Sept 8, 1998</i>	2pm	2 & 4pm
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Great Shakes! <i>ending date: June 14, 1998</i>		1 & 3pm
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Startalk <i>no ending date, extra show 3:30 pm Fridays</i>		12pm
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Neighbors in Space <i>no ending date</i>		11am
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Extra shows given April 6-17, 1998 due to Easter break call for showtimes.

May

The Sands of Mars <i>ending date: Sept. 8, 1998</i>	2pm	2 & 4pm
--	-----	---------

Great Shakes! <i>ending date: June 14, 1998</i>		1 & 3pm
--	--	---------

Startalk <i>no ending date, extra show 3:30 pm Fridays</i>		12pm
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Neighbors in Space <i>no ending date</i>		11am
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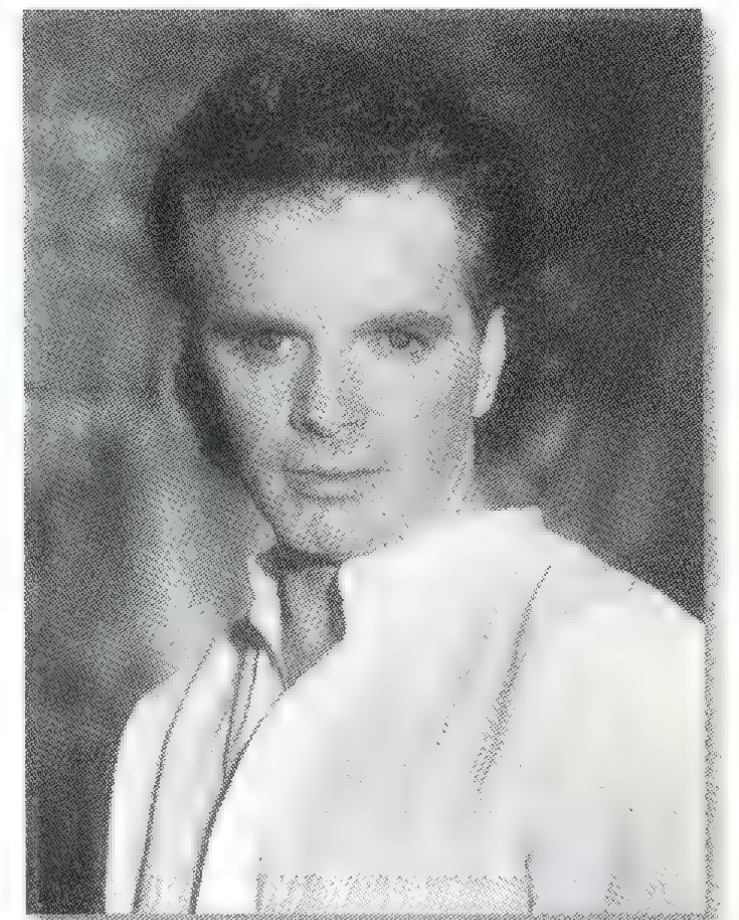
Tickets can be purchased one half hour before the show (box office opens at 10:30am on weekends) at the box office once inside the Academy of Sciences (\$2.50 adults/\$1.25 youth & seniors, though some shows vary). If you have a child under 6 years old with you please ask the cashier for a "Child's Pass". For more information, please call 750-7141.

Members must redeem their complimentary Planetarium passes at the Planetarium Box Office BEFORE they enter the theater.

Lumia Nights

Space Romance Under the Stars

Once again, California Academy of Sciences is proud to present Miramar recording artist Jonn Serrie. Serrie's music has been heard in many planetariums around the world, including New York's Hayden Planetarium. It has been heard on CNN, Discovery and Sci Fi channels, and in collaboration with Lucasfilm, Inc. Serrie has released eight albums, and now turns his talents to a celebration of love and



John Serrie

romance with Lumia Nights, a concert under the stars in the Morrison Planetarium. Supplemented with planetarium visuals, this performance of romantic space music with an ethereal touch is sure to be a heavenly experience.

Tickets are \$12 for adults and \$8 for children. For tickets, please call (415) 750-7127. Remaining tickets will go on sale at the door the evening of the concert.

Tuesday, May 5 at 7:30 pm

New Sky Show – The Sands of Mars

As sophisticated spacecrafts are being sent out to scout and study the most Earthlike of the other worlds, what have we learned and what further explorations are planned?

Junior Academy

Spring Break at the Junior Academy

Join the fun at the Junior Academy's Spring Break Workshops and Field trips, offered April 6-17.

Green Slime

Ponds often have a layer of green slime on the surface of the water. This algae is the basis for an entire community of pond life. In this fun, activity-based class, get your feet wet, meet the denizens of the slime, and get a basic introduction to pond ecology. Identify insects and other arthropods, investigate their life cycles, and understand aquatic ecosystems. At a nearby pond in Golden Gate Park, collect specimens with dip nets. Using observation skills, microscopes and other tools, take on the role of an investigative biologist to figure out how and why these creatures can thrive on the slime.

Tuesday, April 7 or
Wednesday, April 15

1 to 4 pm

Instructor: Dave Poarch
ages 6 - 8 years; \$25

A Day in the Life of an Aquatic Biologist II

The responsibilities of an aquatic biologist at Steinhart Aquarium cover a broad spectrum of activities from monitoring water systems to taking care of sharks and seals. Join Steinhart Aquarist Carey Linder, as she makes her daily rounds. Find out why water filtration is important and how fish are transported safely from one tank to another. Assist in preparing food for the animals and learn what diseases they might get. A visit to the tropical shark exhibit and a chance to observe seal training techniques are also included. By the end of the morning, decide if you want to be an aquatic biologist yourself!

Monday, April 6 or
Tuesday, April 14
9 am to noon
Instructor: Carey Linder
ages 9 - 14 year; \$25

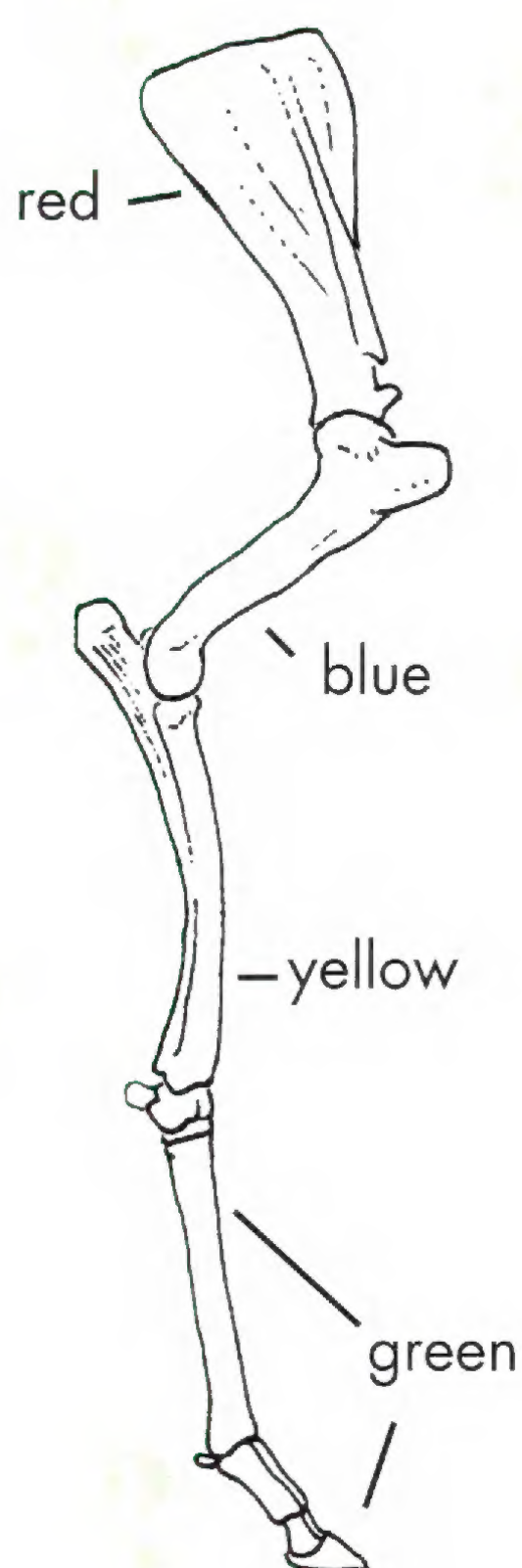
Elephant Seals & Wild Blue Iris

Springtime is at its peak in Northern California during the month of April. Join Jack Laws in an all-day expedition to the Point Reyes Peninsula. Equipped with telescopes, binoculars and insect nets, discover the secrets of spring from tracking to birdsong, from wildflowers to the recently established elephant seal rookery above Chimney Rock. Return to the city amazed at how much natural beauty lives right on our doorstep.

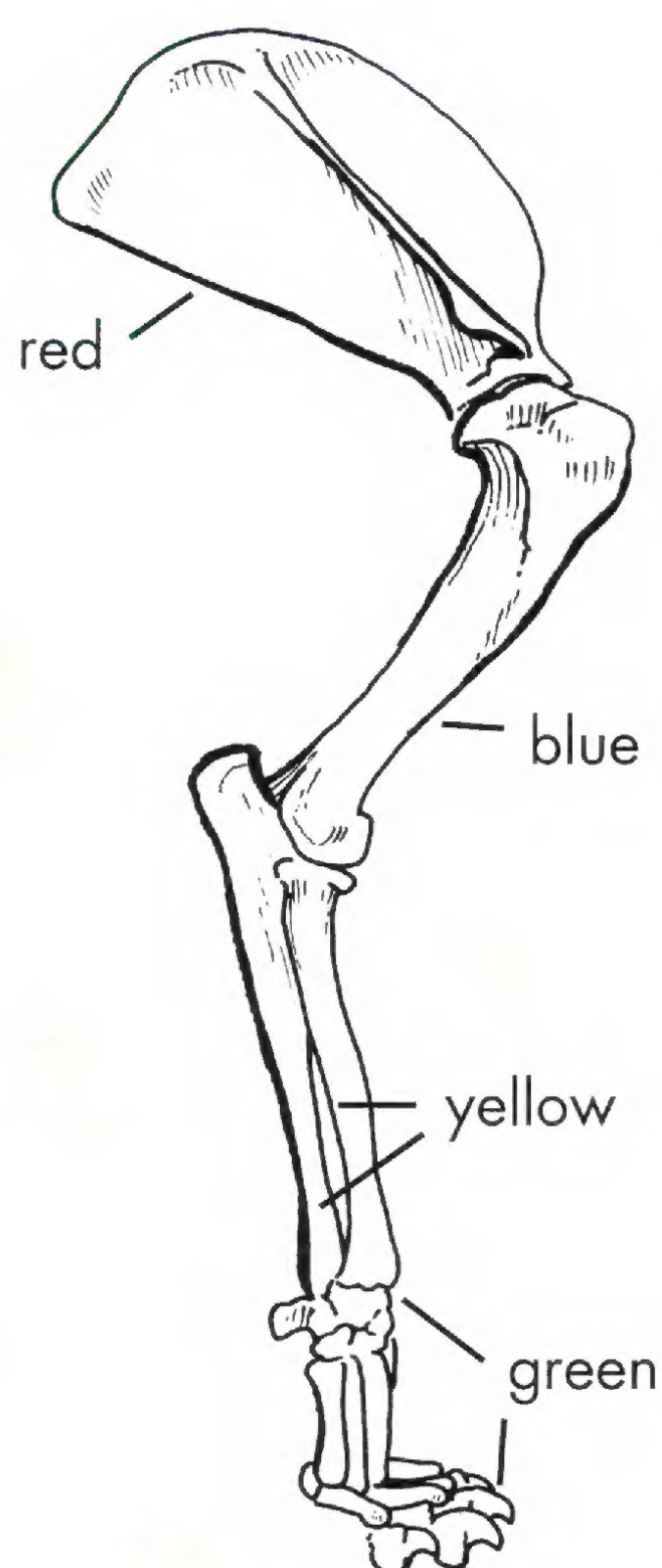
Wednesday, April 8 or
Thursday, April 16
9 am to 5 pm
Instructor: Jack Laws
ages 9 - 14 years; \$40
Transportation included

For current availability of these and other Spring Break Workshops, please call (415) 750-7100.

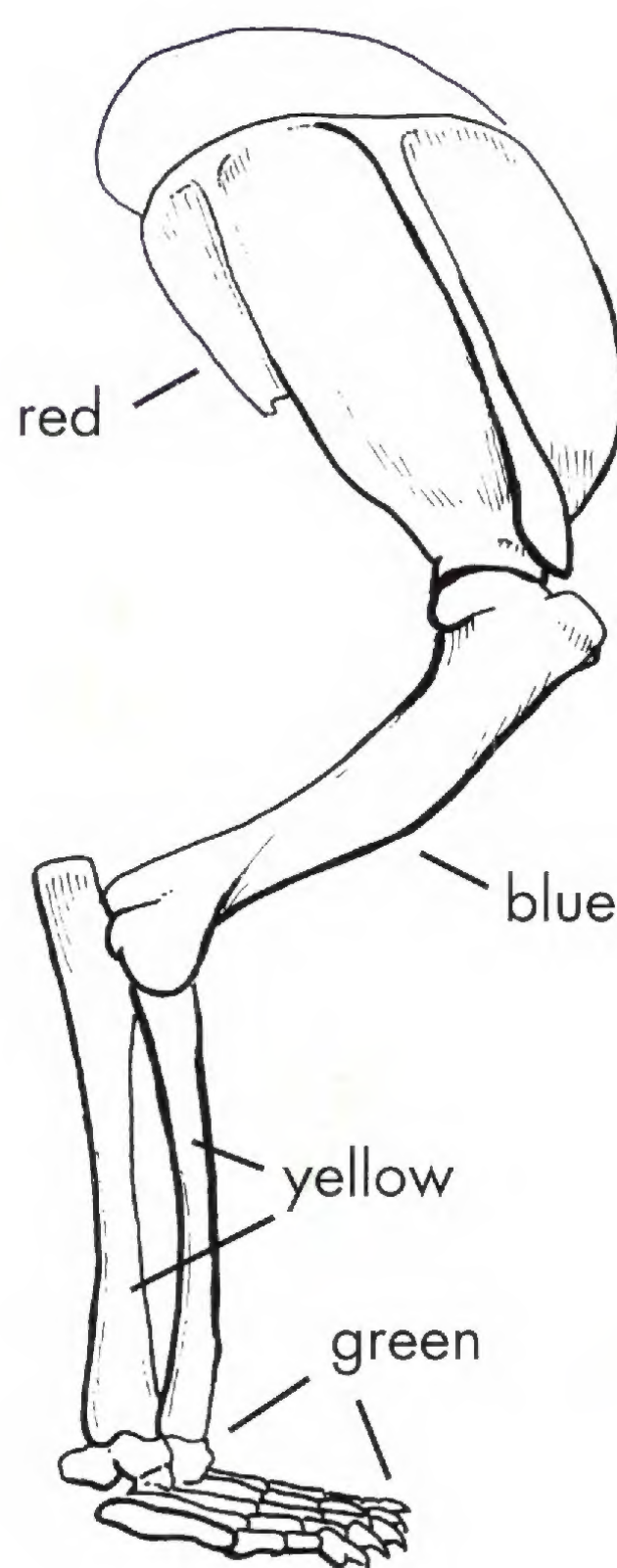
Kid Stuff



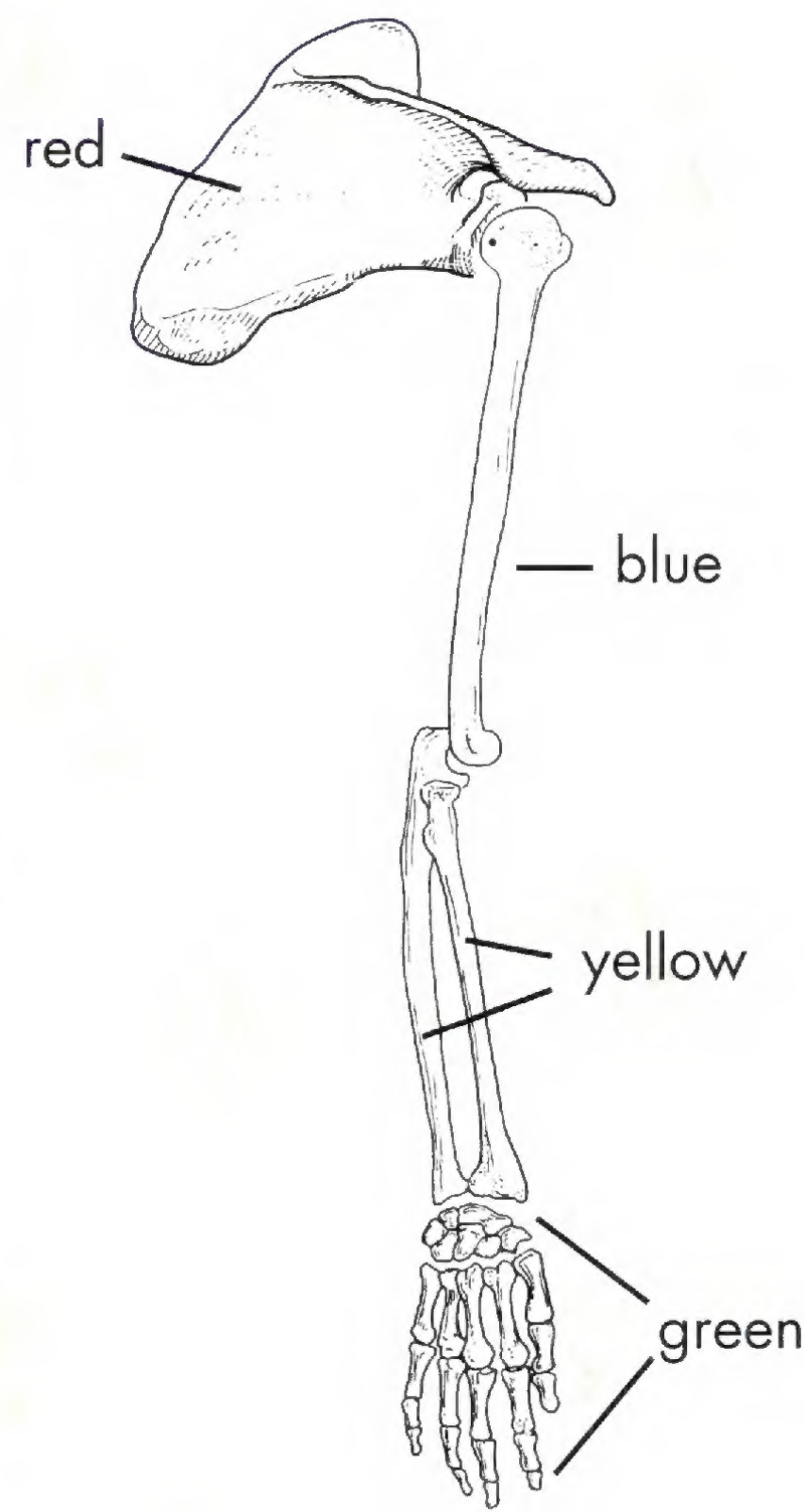
Antelope



Lion



Bear



Human

Use crayons to color the front legs of these different animals.

What similarities and differences can you see?

(red= scapula, blue= humerus, yellow= radius and ulna, green= carpals, metacarpals, and phalanges)

Order Form

Your Name: _____
 Address _____ City _____
 State _____ Zip _____ Member # _____

ACADEMY BALL **Quantity** **Total**
Birds of a Feather/April 29 _____ X \$300 = _____

ADULT EDUCATION **Qty/Members** **Qty/Nonmembers Total**
 Abyssal Enigmas/April 15 _____ X \$10 _____ X \$15 = _____
 Evolution of Evolution/April 22 _____ X \$10 _____ X \$15 = _____
 Wonders of the Hubble
 Telescope/May 1 _____ X \$10 _____ X \$15 = _____
 Sunflowers Demystified/May 30 _____ X \$20 _____ X \$25 = _____
 Family Program:
 Bugs for Kids/May 9 _____ X \$15/\$10 _____ X \$20/\$15 = _____

B. DEAN LECTURE SERIES **Quantity** **Total**
 Exploration of Saturn/April 4 _____ X \$3 = _____
 Missions to Mars/May 19 _____ X \$3 = _____

JUNIOR ACADEMY **Quantity** **Total**
Please call (415) 750-7100 for class availability.
 Green Slime/April 7 or April 15 _____ X \$25 (ages 6-8) = _____
 A Day in the Life of an Aquatic
 Biologist II/April 6 or April 14 _____ X \$25 (ages 9-14) = _____
 Elephant Seals & Wild Blue
 Iris/April 8 or April 16 _____ X \$40 (ages 9-14) = _____

SPECIAL LECTURES **Qty/Members** **Qty/Nonmembers Total**
 Raptor Photography/April 14 _____ X \$3 _____ X \$5 = _____
 California Condor _____ X \$3 _____ X \$5 = _____

THE WILDLIFE TALKS **Qty/Members** **Qty/Nonmembers Total**
 The Degradation and Restoration of Coral Reefs/Apr. 9
 lecture only _____ X \$6 _____ X \$10 = _____
 lecture and reception _____ X \$36 _____ X \$45 = _____
 Dry Forest to Rain Forest/June 4
 lecture only _____ X \$6 _____ X \$10 = _____
 lecture and reception _____ X \$36 _____ X \$45 = _____

DONATIONS
☐ I would like to support the Academy of Sciences with a donation. \$ _____
☐ Please send me information about life income gifts and bequests to the Academy

GIFT MEMBERSHIP FORM
\$60 Family or Grandparent
 I wish to give a gift membership to: _____
 Address _____ City _____
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TOTAL PAYMENT ENCLOSED \$ _____ ☐ Check (made payable to CAS)
☐ Visa ☐ Mastercard ☐ American Express (\$10 minimum on credit card orders)
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 Daytime Phone _____

Mail payment and order form to: Membership Office, Ticket Services, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118-4599.
 Include a self-addressed, stamped envelope for each series to which you subscribe.
 No refunds/exchanges.



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 Carolyn Macmillan

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 Meagan Levitan

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 Samantha Moss

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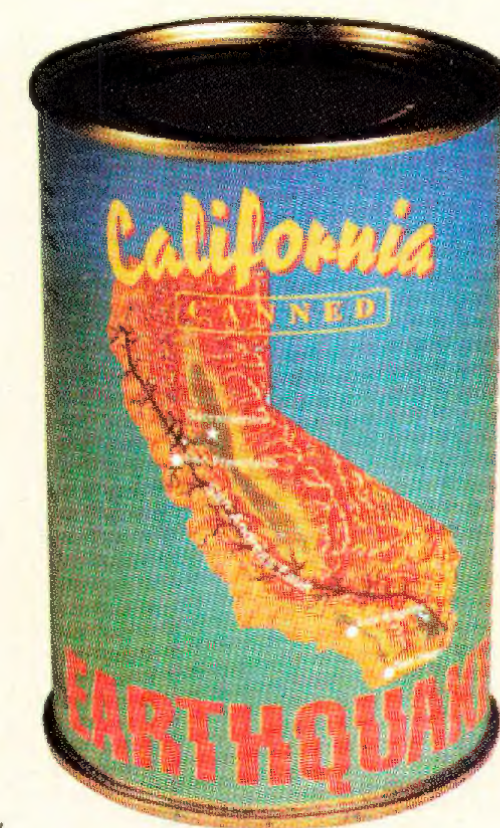
Academy Store

Just in time for the Earthquake exhibit, the Academy Store is featuring a selection of books on earthquakes.

Or pick up a can of "California Earthquake," the novelty piece that friends and family will love (\$11). The can is complete with an image of the San Andreas Fault, with a graph showing the dates, locations, and magnitude of famous California earthquakes.

And on weekends only through May 3, visit the *Hunters of the Sky* Store, featuring a wide variety of books and other gifts relating to birds of prey.

As always, members will receive a 10% discount on all purchases. For more information, please call the Academy store at (415) 750-7410.



13th Annual Black Tie Ball

On Wednesday, April 29, the Academy will once again be dressed in its party finery for the 13th Annual Black Tie Ball, *Birds of a Feather*. Seven hundred guests will enjoy cocktails, champagne and hors d'oeuvres by Dan McCall, Swan Oyster Depot and Yank Sing dim sum. A seated dinner will take place in African Hall, Wild California, Space Hall and the Steinhart Aquarium, followed by a fabulous dessert buffet and dancing in the Courtyard Tent. Entertainment from around the world will add to the excitement.

This year's Dinner Chairs are Christy and Jay Hagenbuch. Ernst & Young, LLP is the Corporate Sponsor.

Tickets for this year's event begin at \$300 per person. Tables of 10 are available at \$5000, \$7,500 and \$10,000. For further information, please call Deidre Kernan or Anne Rianda in the Special Events Office at (415) 750-7222. You may also use the order form on page 14 for tickets.

Eben, con't. from page 5

ranch but didn't like the way the land was treated, so he saved his money and eventually bought 480 acres. Skillful land management brought about financial independence for his family. Eben travelled with his wife, Gladys, and their three sons to places as far as Australia, where he made films that he later showed on the Audubon lecture circuit.

Through perceptive land management Eben and his brother Ike built up enormous flocks of quail which were the wonder of the county. They were vocal advocates for leaving some condors in the wild to carry on their behavioral traditions.

I first met Eben in 1947, when my father and I were dove hunting near Shandon. Eben opened the wonders of the inner coast range and valley to me as he did to many other budding naturalists. All of us who knew him are fortunate beyond measure. He was a free man who spoke the truth as he saw it, loved the land, and revered the natural order behind its changing phenomena.

On our Cover

Hayes Valley after the 1906 Earthquake.

Photo courtesy of Gladys Hansen.

Exploring Nature and History in the Pacific Northwest

aboard MV Sea Lion
with Michael Boyle, Aquatic Biologist, Steinhart Aquarium

September 20-26, 1998

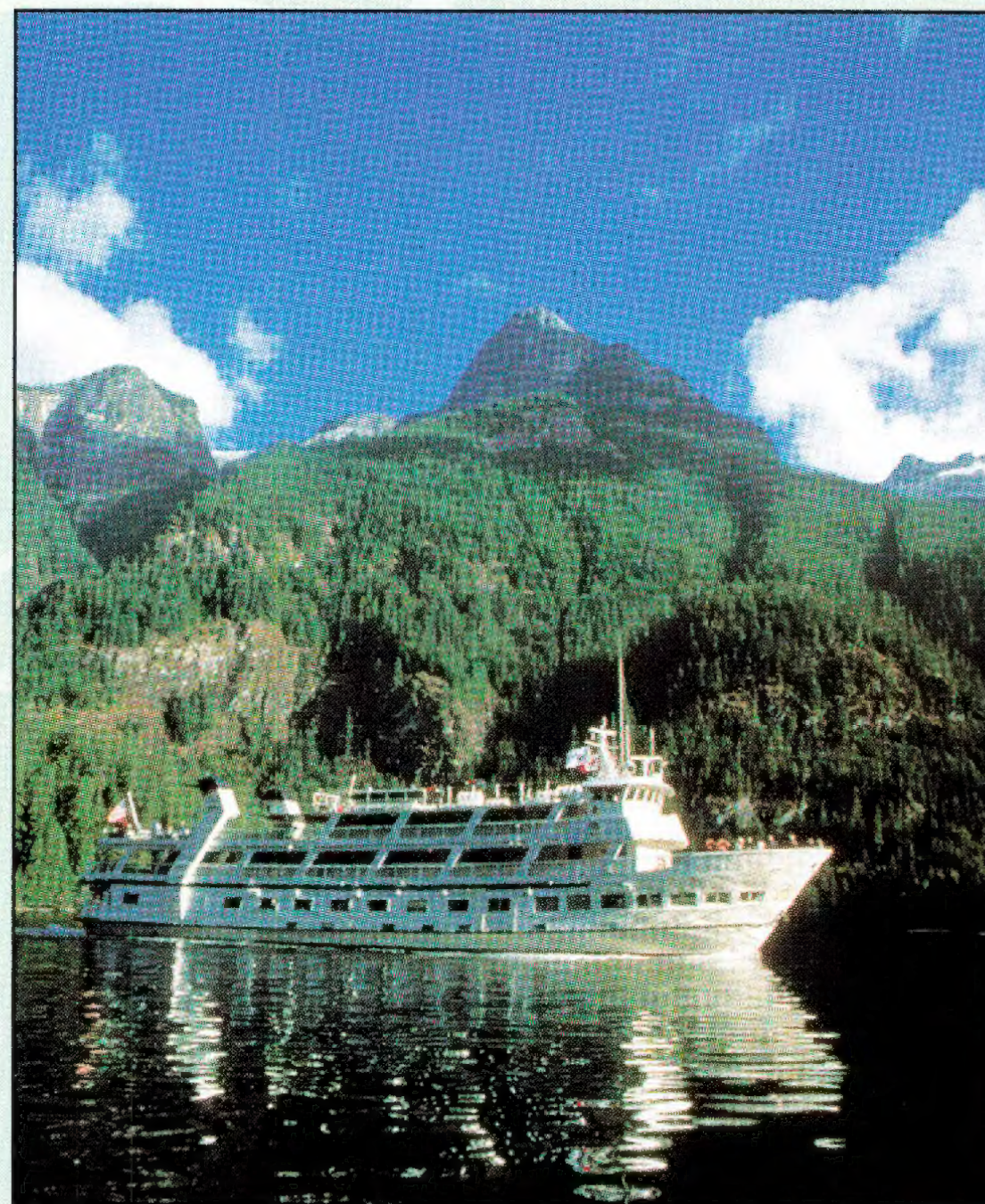


PHOTO: RALPH LEE HOPKINS

Sea Bird – Princess Louisa Inlet, B. C. Canada

The island-studded waters of the Pacific Northwest are an often-overlooked place of tranquil beauty and surprising diversity. It's a place of channels, straits, and inlets with unspoiled forested shorelines punctuated by picturesque small towns and fishing villages. Autumn is a marvelous time to explore this region—reds and golds fleck the woodlands, and whales and dolphins are often seen in the deep channels between the islands.

Your seven-day voyage begins in Seattle, one of North America's most beautiful cities. You will spend a glorious day in the San Juan Islands, an archipelago of some 170 idyllic, forested islands. At the charming city of Victoria, you will visit the renowned Butchart Gardens and the excellent Royal British Columbia Museum. You will explore the Gulf Islands and inlets of British Columbia, looking for whales, dolphins, and other wildlife, as well as Johnstone Strait, one of the major areas for orcas in the Northern Hemisphere.

In the town of Alert Bay, you will see remarkable Native American art. A full day will be spent cruising the length of spectacular Princess Louisa Inlet, before sailing into Vancouver.

Your Academy leader, Michael Boyle, was born in Canada and grew up in British Columbia. He has worked on the west coast of Vancouver Island in the salmon farming industry and in Hawaii and British Columbia as an aquatic specimen collector.

Cost per person (based on double occupancy): \$1,190 to \$3,900 (not including airfare)

**For a detailed itinerary on this tour, please call
Deidre Kernan or Bonnie Frey at (415) 750-7348.**

April

1 Wednesday

The California Condor, 7 pm
(Special Lecture, p. 8)

4 Saturday

Radio Tracking, 11 am & 2 pm
(Hunters of the Sky Program, p. 5)

Highlife Music from Ghana, 1 pm
(Traditional Arts, p. 11)

Exploration of Saturn, 7:30 pm
(B. Dean Lecture, p. 9)

7 Tuesday

HawkWatch, 11 am & 2 pm
(Hunters of the Sky Program, p. 5)

Exploration of Saturn, 7:30 pm
(B. Dean lecture, p. 9)

8 Wednesday

Hibou the Great Horned Owl, 11 am
(Hunters of the Sky Program, p. 5)

Animals From DownUnder,
2 pm & 7:30 pm
(Members Meeting, p. 6)

9 Thursday

Life Below the Sea, 7:30 pm
(6:30 reception)
(The Wildlife Talks, p. 7)

10 Friday

Raptors: A Flight Above, 2 pm
(auditorium, p. 5)

11 Saturday

Raptors: A Flight Above,
10:45 am & 2 pm
(auditorium, p. 5)

Eastern European Gypsy
Music, 1 pm
(Traditional Arts, p. 11)

12 Sunday

Raptors: A Flight Above,
10:45 am & 2 pm
(auditorium, p. 5)

13 Monday

Raptors: A Flight Above,
10:45 am & 2 pm
(auditorium, p. 5)

14 Tuesday

Raptors: A Flight Above,
10:45 am & 2 pm
(auditorium, p. 5)

Raptors: Beauty, Biology, and
the Future, 7 pm
(Special Lecture, p. 7)

15 Wednesday

Raptors: A Flight Above,
10:45 am & 2 pm
(auditorium, p. 5)

16 Thursday

Raptors: A Flight Above,
10:45 am & 2 pm
(auditorium, p. 5)

17 Friday

EARTHQUAKE Members
Preview, 5 to 8 pm

Raptors: A Flight Above,
10:45 am & 2 pm
(auditorium, p. 5)

18 Saturday

EARTHQUAKE exhibit opens

Theoretical Issues in Plant
Biology, 8:30 am
(Bioforum, p. 10)

Raptors: A Flight Above,
10:45 am & 2 pm
(auditorium, p. 5)

The California Condor, 1 pm
(Hunters of the Sky Program, p. 5)

19 Sunday

Raptors: A Flight Above,
10:45 am & 2 pm
(auditorium, p. 5)

21 Tuesday

Song of the Blue Ocean, 2:30 pm
(auditorium, p. 7)

25 Saturday

Papyrus Making Demonstration,
1:00 pm
(Traditional Arts, p. 11)

Hibou the Great Horned Owl, 11 am
(Hunters of the Sky Program, p. 5)

26 Sunday

Storytelling, 11 am & 2 pm
(Hunters of the Sky Program, p. 5)

29 Wednesday

Birds of a Feather
(13th Annual Black Tie Ball, p. 15)

May

3 Sunday

Raptors! 11 am & 2 pm
(Hunters of the Sky Program, p. 5)

5 Tuesday

Lumia Nights, 7:30 pm
(Morrison Planetarium, p. 12)

9 Saturday

Bugs for Kids, 9 am to Noon
(family Program, p. 8)

Basketweaving, 1:00 pm
(Traditional Arts, p. 11)

10 Sunday

Mother's Days

13 Wednesday

Members Open House, 6 to 9 pm

16 Saturday

Ethobotany, 1:00 pm
(Traditional Arts, p. 11)

19 Tuesday

Missions to Mars, 7:30 pm
(B. Dean Lecture, p. 9)

23 Saturday

Soaproot Brushes & Cordage,
1:00 pm
(Traditional Arts, p. 11)

30 Saturday

Ceremonial Arts opens

Acorn Preparation, 1:00 pm
(Traditional Arts, p. 11)

VISITOR INFORMATION

Special Exhibitions:

EARTHQUAKE

Opens April 18

Always Getting Ready
through August 2

Ceremonial Arts of the Amazon
May 30 through September 8

Space Art
through June 28

Hunters of the Sky
through May 3

Witness
no ending date

Feeding Times:
Fish Roundabout, 2 pm
Penguins, 11:30 am & 4 pm

Guided Tours:
Free one-hour highlight tours
daily

Laserium Shows:
Thu.-Sun. evenings

Free Day:
First Wed. of each month

Open every day of the year.

Winter hours - 10 am - 5 pm

Summer hours (Memorial Day
weekend to Labor Day)
9 am - 6 pm

Information Hotline:
(415) 750-7145

World Wide Website:
www.calacademy.org

Who to Call:

Academy Info: 750-7145

Academy Store: 750-7410

Aquarium: 750-7247

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Membership: 750-7111

Planetarium: 750-7141

Planned Giving: 750-7216

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Weekend Information:
750-7375



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